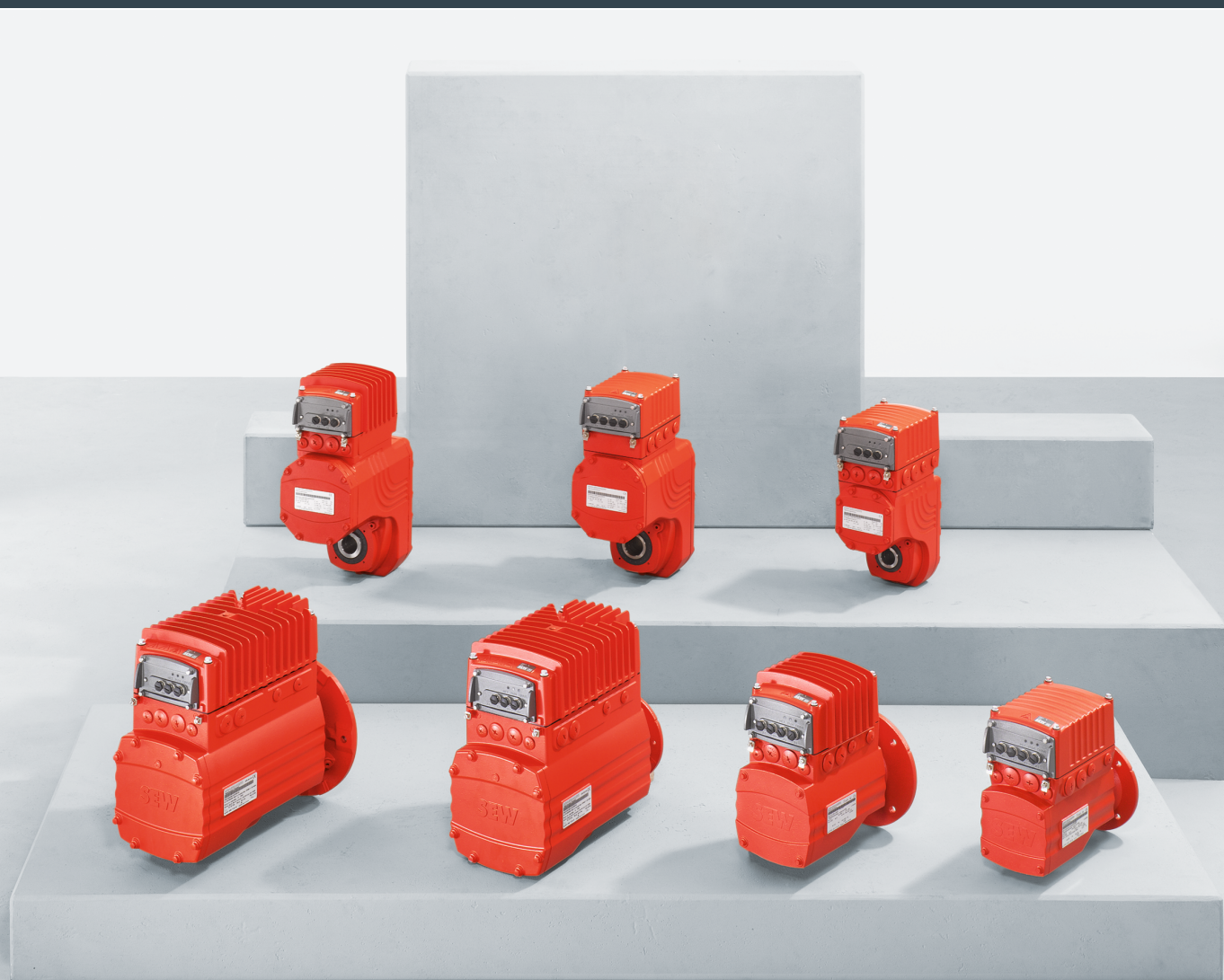




Product Description



Mechatronic Drive Systems

MOVIGEAR® B and DRC.. Electronic Motor

Plug Connectors and Prefabricated Cables



Table of contents

1	General information.....	6
1.1	About this documentation	6
1.2	Structure of the safety notes	6
1.2.1	Meaning of signal words	6
1.2.2	Structure of section-related safety notes.....	6
1.2.3	Structure of embedded safety notes	6
1.3	Rights to claim under limited warranty	7
1.4	Exclusion of liability	7
1.5	Other applicable documentation	7
1.6	Product names and trademarks.....	7
1.7	Copyright notice	7
2	Plug connectors and prefabricated cables	8
2.1	Designation key	8
2.2	Connection cables	8
2.2.1	Cable routing.....	9
2.2.2	Cable types	9
2.2.3	Using prefabricated cables with plug connectors.....	9
2.3	Plug connector variant	10
2.3.1	M12 plug connector.....	10
2.3.2	M23 plug connectors.....	11
2.4	Using plug connectors assembled by yourself.....	13
2.4.1	Order information	13
3	MOVIGEAR® DBC-B/DRC-DBC electronic motor	14
3.1	Plug connector positions.....	14
3.2	Restrictions in conjunction with pressure compensation	15
3.3	Optional plug connector assignment.....	16
3.3.1	X1203_1 and X1203_2: AC 400 V connection.....	16
3.3.2	X5132: Digital inputs/outputs	21
3.3.3	X5502: STO	23
3.3.4	X5503: STO	27
3.3.5	STO jumper plug	29
3.4	Dimension drawings for MOVIGEAR® DBC-B/DRC-DBC electronic motors	30
3.4.1	Plug connector	30
3.4.2	Plug connector including mating connector	31
4	MOVIGEAR® DAC-B/DRC-DAC electronic motor	32
4.1	Plug connector positions.....	32
4.2	Restrictions in conjunction with pressure compensation	33
4.3	Plug connector assignment.....	34
4.3.1	X4271: AS-Interface communication interface.....	34
4.3.2	X5011: AS-Interface sensor connection.....	35
4.4	Optional plug connector assignment.....	36
4.4.1	X1203_1 and X1203_2: AC 400 V connection.....	36
4.4.2	X5132: Digital inputs/outputs	41

4.4.3	X5502: STO	43
4.4.4	X5503: STO	47
4.4.5	STO jumper plug	49
4.5	Dimension drawings for MOVIGEAR® DAC-B/DRC-DAC electronic motors	50
4.5.1	Plug connector	50
4.5.2	Plug connector including mating connector	51
5	MOVIGEAR® DSC-B/DRC-DSC electronic motor	52
5.1	Plug connector positions.....	52
5.2	Restrictions in conjunction with pressure compensation	54
5.3	Optional plug connector assignment.....	55
5.3.1	X1203_1 and X1203_2: AC 400 V connection.....	55
5.3.2	X1231: AC 400 V input and CAN bus	60
5.3.3	X2324: AC 400 V output and CAN bus	64
5.3.4	X1291: AC 400 V input, CAN bus, safe disconnection (STO).....	67
5.3.5	X2391: AC 400 V output, CAN bus, safe disconnection (STO)	71
5.3.6	X4104: CAN bus – system bus – input	74
5.3.7	X4103: CAN bus – system bus – output	76
5.3.8	X5131: Digital inputs/outputs	78
5.3.9	X5133: Digital inputs/outputs	80
5.3.10	X5502: STO	81
5.3.11	X5503: STO	85
5.3.12	STO jumper plug	87
5.4	Connection cables	88
5.4.1	Recommended hybrid cables AC 400 V and communication (DSC)	88
5.4.2	Hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)	89
5.5	Specification of recommended CAN connection cable (DSC).....	90
5.5.1	Description	90
5.5.2	Physical properties (in total).....	90
5.5.3	Mechanical properties (in total)	90
5.5.4	Electrical properties (in total).....	90
5.5.5	Notes on connection	91
5.6	Specification of recommended hybrid cables AC 400 V and communication (DSC)....	92
5.6.1	Technical data of hybrid cables.....	93
5.6.2	Notes on connection	94
5.7	Specification of hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)	95
5.7.1	Technical data of hybrid cables.....	96
5.7.2	Notes on connection	97
5.8	Dimension drawings for MOVIGEAR® DSC-B/DRC-DSC electronic motors	98
5.8.1	Plug connector	98
5.8.2	Plug connector including mating connector	99
6	MOVIGEAR® SNI-B/DRC-SNI electronic motor.....	100
6.1	Plug connector positions.....	100
6.2	Restrictions in conjunction with pressure compensation	101
6.3	Optional plug connector assignment.....	102

6.3.1	X1241_1 and X1241_2: AC 400 V connection with SNI	102
6.3.2	X1301_1 and X1301_2: AC 400 V connection with SNI, safe disconnection (STO)	106
6.3.3	X5131: Digital inputs/outputs	110
6.3.4	X5133: Digital inputs/outputs	112
6.3.5	X5502: STO	113
6.3.6	X5503: STO	117
6.3.7	STO jumper plug	119
6.4	Connection cable	120
6.4.1	Required connection cables for single line installation (SNI)	120
6.4.2	Hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)	122
6.5	Required connection cables for single line installation (SNI)	123
6.5.1	HELUKABEL TOPFLEX®	123
6.5.2	HELUKABEL TOPSERV®	124
6.5.3	LAPP ÖLFLEX®	125
6.5.4	Leoni LEHC	126
6.6	Specification of hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)	127
6.6.1	Technical data of hybrid cables	128
6.6.2	Notes on connection	129
6.7	Dimension drawings for MOVIGEAR® SNI-B/DRC-SNI electronic motors	129
6.7.1	Plug connector	129
6.7.2	Plug connector including mating connector	131
	Index	132

1 General information

1.1 About this documentation

The current version of the documentation is the original.

This documentation is an integral part of the product. The documentation is written for all employees who assemble, install, start up, and service this product.

Make sure this documentation is accessible and legible. Ensure that persons responsible for the machinery and its operation as well as persons who work on the product independently have read through the documentation carefully and understood it. If you are unclear about any of the information in this documentation or require further information, contact SEW-EURODRIVE.

1.2 Structure of the safety notes

1.2.1 Meaning of signal words

The following table shows the grading and meaning of the signal words for safety notes.

Signal word	Meaning	Consequences if disregarded
▲ DANGER	Imminent hazard	Severe or fatal injuries
▲ WARNING	Possible dangerous situation	Severe or fatal injuries
▲ CAUTION	Possible dangerous situation	Minor injuries
NOTICE	Possible damage to property	Damage to the product or its environment
INFORMATION	Useful information or tip: Simplifies handling of the product.	

1.2.2 Structure of section-related safety notes

Section-related safety notes do not apply to a specific action but to several actions pertaining to one subject. The hazard symbols used either indicate a general hazard or a specific hazard.

This is the formal structure of a safety note for a specific section:



SIGNAL WORD

Type and source of hazard.

Possible consequence(s) if disregarded.

- Measure(s) to prevent the hazard.

1.2.3 Structure of embedded safety notes

Embedded safety notes are directly integrated into the instructions just before the description of the dangerous action.

This is the formal structure of an embedded safety note:

▲ SIGNAL WORD Type and source of hazard. Possible consequence(s) if disregarded. Measure(s) to prevent the hazard.

1.3 Rights to claim under limited warranty

Read the information in this documentation. This is essential for fault-free operation and fulfillment of any rights to claim under limited warranty. Read the documentation before you start working with the product.

1.4 Exclusion of liability

Read the information in this documentation, otherwise safe operation is impossible. You must comply with the information contained in this documentation to achieve the specified product characteristics and performance features. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, SEW-EURODRIVE assumes no liability for defects.

1.5 Other applicable documentation

This document supplements the operating instructions and limits the application notes according to the following information. Use this document only together with the operating instructions.

1.6 Product names and trademarks

The brands and product names in this documentation are trademarks or registered trademarks of their respective titleholders.

1.7 Copyright notice

© 2017 SEW-EURODRIVE. All rights reserved. Unauthorized reproduction, modification, distribution or any other use of the whole or any part of this documentation is strictly prohibited.

2 Plug connectors and prefabricated cables

2.1 Designation key

The designation of plug connectors is specified according to the following key:

X	Terminal
2	Group 1 = Power input 2 = Power output 3 = Encoder 4 = Bus 5 = Inputs and outputs
01	Function Function of the plug connector within a group
2	Type Wiring diagram of the plug connector within a function
–	
	Group number (optional) for several plug connectors with the same function
	Sequence number (optional) In case of several plug connectors in one group

2.2 Connection cables

Connection cables are not included in the delivery.

You can order prefabricated cables from SEW-EURODRIVE. These cables are described in the following sections. Specify the part number and length of the required cable in your order.

The number and design of the required connection cables depend on the design of the units and the components to be connected. This is why not all listed cables are required.

The following figure shows the various cable types:

Cable	Length	Installation type
	Fixed length	Suitable for cable carrier installation
	Variable length	Not suitable for cable carrier installation 

2.2.1 Cable routing

Observe the permitted bending radii of the installed cables for cable routing. For detailed information, refer to chapter "Technical data / Dimension sheets / Plug connectors including mating connectors".

2.2.2 Cable types

INFORMATION



For detailed information about cable types, see chapter "Technical data and dimension sheets / Connection cables".

2.2.3 Using prefabricated cables with plug connectors

SEW-EURODRIVE uses prefabricated cables for certifications, type tests and approval of the devices. The cables provided by SEW-EURODRIVE fulfill all requirements necessary to ensure that the device and all connected components function properly. The devices under consideration are always the basic devices including all connected components and corresponding connection cables.

This is why SEW-EURODRIVE recommends to use only the prefabricated cables specified in the documentation.

When using devices with integrated safety functions according to EN ISO 13849, you also have to adhere to all the conditions and requirements for the installation and routing of cables described in the documentation for the devices concerning functional safety.

Using third-party cables with plug connectors

If third-party cables are used – even if these cables are technically adequate – SEW-EURODRIVE does not accept any liability and cannot guarantee unit properties or functions.

When using third-party cables to connect the device and/or device components, make sure to comply with all applicable national regulations. Note that the technical features of the unit or system of units might be affected inadvertently when using non-SEW cables. This concerns in particular the following properties:

- Mechanical properties (e.g. IP degree of protection, cable carrier suitability)
- Chemical properties (e.g. silicone and halogen free, resistance to substances)
- Thermal properties (e.g. thermal stability, increase in unit temperature, flammability class)
- EMC behavior (such as interference emission limit values, compliance with interference immunity values stipulated in standards)
- Functional safety (approvals according to EN ISO 13849-1)

Third-party cables not explicitly recommended by SEW-EURODRIVE must meet at least the requirements of the following standards and have been permitted according to these plug connector standards:

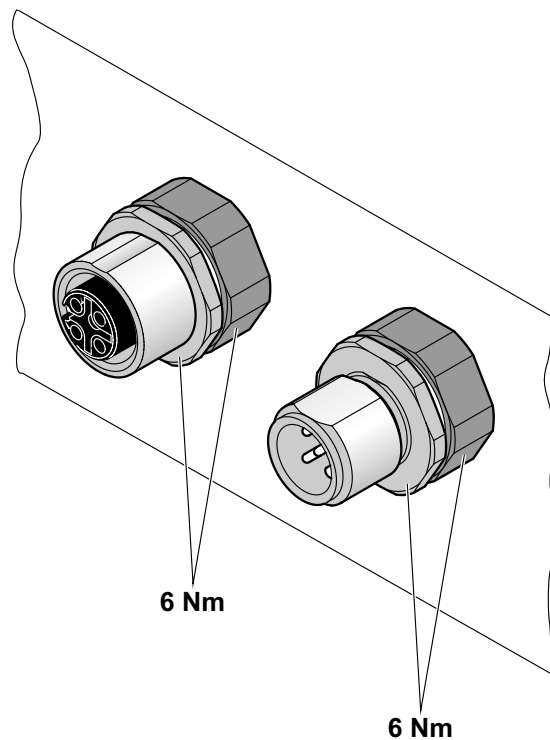
- IEC 60309
- IEC 61984

2.3 Plug connector variant

2.3.1 M12 plug connector

M12 plug connectors are delivered so they match the connection cables provided by SEW-EURODRIVE. Customers can adjust the orientation of plug connectors if required.

The following figure shows a schematic illustration with the permitted tightening torques:



19443420299

2.3.2 M23 plug connectors



▲ CAUTION

Possible damage of the right-angle connector when rotated without mating connector.

Irreparable damage to the thread, damage to the sealing surface.

- Do not use pliers to adjust the right-angle connector before connecting it.



▲ CAUTION

Adjusting the right-angle connector too often can damage it.

Potential damage to property

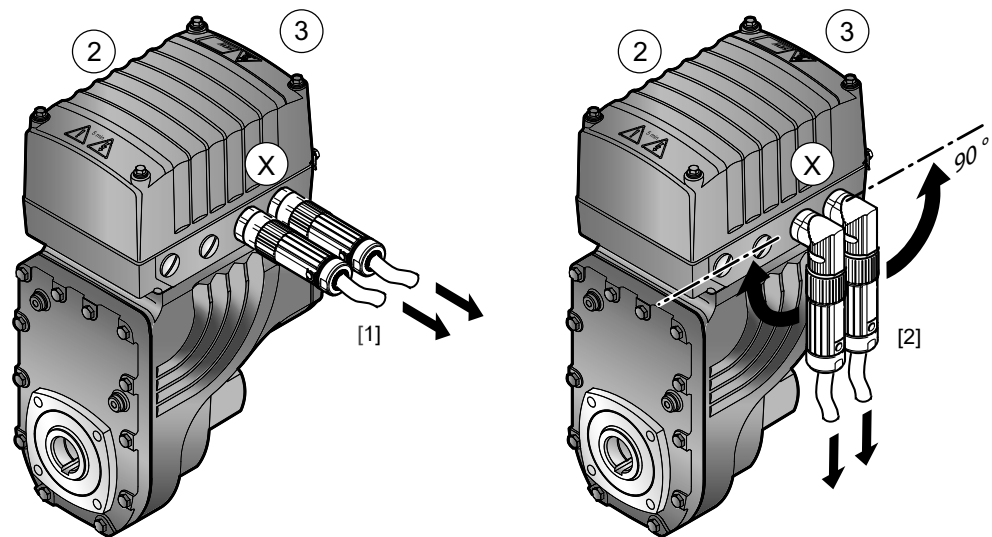
- Adjust the plug connector only when installing and connecting the drive unit.
- Do not turn the plug connector regularly once it has been installed.

The following M23 plug connectors are available:

- [1] "Straight" plug connector
- [2] "Right-angle" plug connector

Once the mating connector has been plugged in, the "right-angle" connector can be adjusted without using additional tools.

Example: MOVIGEAR®



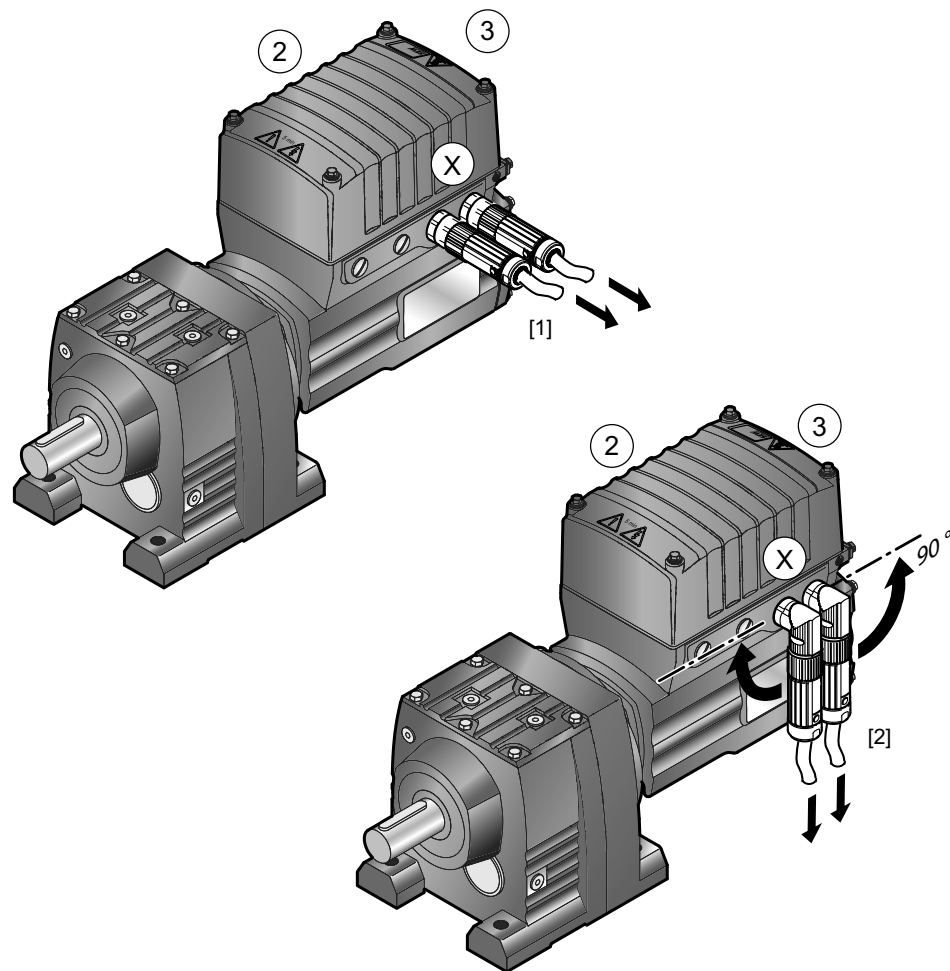
36028799868110603

INFORMATION



For the MOVIGEAR® variant MGF..4/XT with increased torque, the "right-angle" type is not possible with plug connector position 3.

Example: DRC..



18014402582291211



INFORMATION

The plug connector option "right-angle" cannot be used with DRC1 to DRC4 electronic motors in connection with plug connector position 3.

2.4 Using plug connectors assembled by yourself

2

INFORMATION

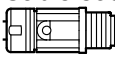
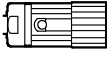
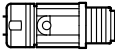
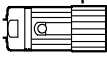
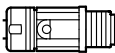


Power and hybrid plug connectors as well as the associated assembly tools are also available from the company Intercontec.

If the order designation is not coded via the online order system of Intercontec, please contact the company Intercontec for clarification.

2.4.1 Order information

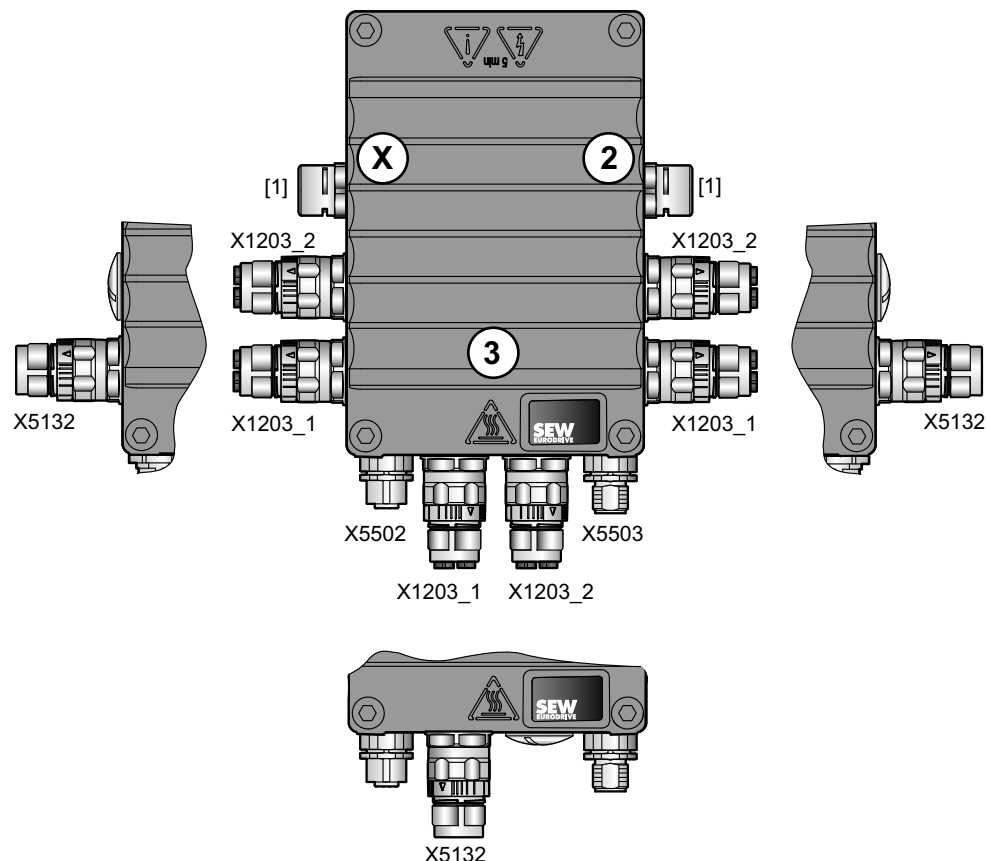
The table below shows the order designations for Intercontec connectors with the matching coding for assembly by the customer:

Connector type		Designation for ordering from supplier Intercontec
DBC/DAC/DSC Coding ring: Black	Cable plug (male) 	H 51 A 019 MR 02 59 0102 000
	Cable socket (female) 	H 52 A 013 FR 02 59 0102 000
SNI Coding ring: Red	Cable plug (male) 	H 51 A 031 MR 02 42 0103 000
	Cable socket (female) 	H 52 A 025 FR 02 59 0103 000
DSC hybrid Coding ring: Violet	–	Not intended for assembly by customer
DSC/SNI hybrid+STO Coding ring: Yellow	Cable plug (male) 	H 51 A 613 MR 18 59 0110 007
	Cable socket (female) 	H 52 A 613 FR 18 59 0110 007

3 MOVIGEAR® DBC-B/DRC-DBC electronic motor

3.1 Plug connector positions

The following figure shows possible plug connector positions:



27021600210343819

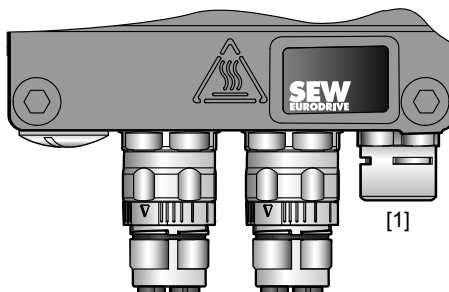
Plug connector	Position
X5132: Digital inputs/outputs	X, 2 or 3 not together at a position with: X1203_1, X1203_2
X5502 (orange) STO ¹⁾	3 (left)
X5503 (orange) STO ¹⁾	3 (right)
X1203_1 (black) AC 400 V connection ²⁾	X, 2 or 3 not together at a position with: 5132
X1203_2 (black) AC 400 V connection	Always corresponds to the selection of X1203_1
[1] Optional pressure compensation	Depends on mounting position

1) Plug connectors X5502 and X5503 can only be ordered together.

2) Plug connector X1203_1 is also available separately (i.e. without plug connector X1203_2).

3.2 Restrictions in conjunction with pressure compensation

In connection with optional pressure compensation and mounting positions M5 and M6, the position for the STO plug connectors is occupied by the pressure compensation fitting [1]. In this case, plug connectors for STO are not possible:



18014400955587339

3.3 Optional plug connector assignment



▲ WARNING

Electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries

- Switch off the power supply voltage.
- Never plug or unplug plug connectors while they are energized.

3.3.1 X1203_1 and X1203_2: AC 400 V connection

The following table shows information about this connection:

Function		
AC 400 V connection for supplying the unit/for looping through		
Connection type		
M23, SEW insert, SpeedTec-capable, company Intercontec, female, coding ring: black, protected against contact		
Wiring diagram		
Assignment		
No.	Name	Function
A	L1	Line connection phase L1
B	L2	Line connection phase L2
C	L3	Line connection phase L3
D	n.c.	Not connected
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved

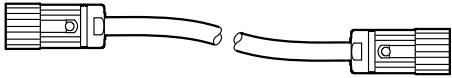
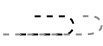
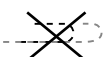
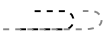
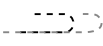
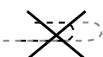
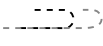
Connection cables

The following tables list the cables available for this connection:

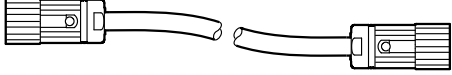
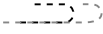
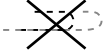
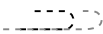
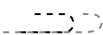
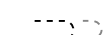
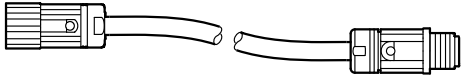
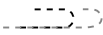
Cable cross section 1.5 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 Open M23, coding ring: black, male	CE: 18180094	HELUKABEL® JZ-600	Variable 	1.5 mm² / AC 500 V

Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male M23, coding ring: black, male	CE: 18127460	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133959 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153267	HELUKABEL® – JZ-602	Variable 	
	UL: 18153275	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open M23, coding ring: black, male	CE: 18127479	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133967 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153283	HELUKABEL® – JZ-602	Variable 	
	UL: 18153291	HELUKABEL® MULTIFLEX® – 512	Variable 	

Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male	CE: 18127487	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133975 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153305	HELUKABEL® – JZ-602	Variable 	
	UL: 18153313	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open	CE: 18127495	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133983 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153321	HELUKABEL® – JZ-602	Variable 	
	UL: 18153348	HELUKABEL® MULTIFLEX® – 512	Variable 	
 M23, coding ring: black, male	UL: 18166318	HELUKABEL® MULTIFLEX® – 512	Variable 	4 mm ² / AC 500 V

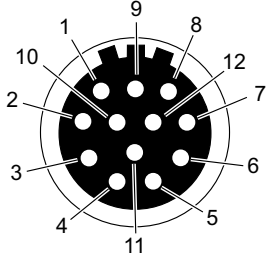
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18180094	L1	Black	1
18127479	L2	Black	2
18133967	L3	Black	3
18153283	PE	Green/yellow	–
18153291			
18127495			
18133983			
18153321			
18153348			

3.3.2 X5132: Digital inputs/outputs

The following table shows information about this connection:

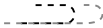
Function		
Digital inputs/outputs for: MOVIGEAR® / DRC..		
Connection type		
M23, P insert, 12-pin, SpeedTec-capable, Intercontec, female, 0° coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	DI01	Digital input DI01
2	DI02	Digital input DI02
3	DI03	Digital input DI03
4	DI04	Digital input DI04
5	Res.	Reserved
6	K1a	Signal relay K1a
7	K1b	Signal relay K1b
8	+24V_O	DC 24 V output
9	0V24_O	0V24 reference potential
10	Res.	Reserved
11	Res.	Reserved
12	FE	Equipotential bonding / functional earth

3 MOVIGEAR® DBC-B/DRC-DBC electronic motor

Optional plug connector assignment

Connection cable

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 Open M23, 12-pin, 0° coded, male	CE/UL: 11741457	Variable 	DC 60 V

Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding
11741457	DI01	Pink
	DI02	Gray
	DI03	Red
	DI04	Blue
	Reserved	Yellow
	K1a	Green
	K1b	Violet
	+24V_O	Black
	0V24_O	Brown
	Reserved	White
	Reserved	Gray/pink
	FE	Red/blue

23493666/EN – 04/2017

3.3.3 X5502: STO

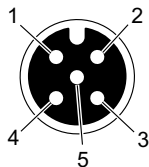


▲ WARNING

No safe disconnection of the MOVIGEAR® / DRC.. drive unit.
Severe or fatal injuries.

- Do not use the 24 V output (pins 1 and 3) for safety-related applications with MOVIGEAR® / DRC.. drive units.
- You may only jumper the STO connection with 24 V when the MOVIGEAR® / DRC.. drive unit is not used to fulfill any safety functions.

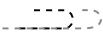
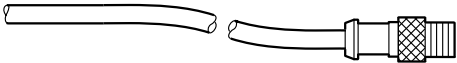
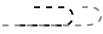
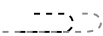
The following table shows information about this connection:

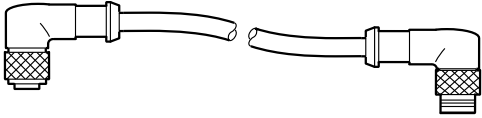
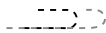
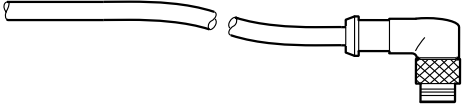
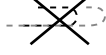
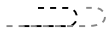
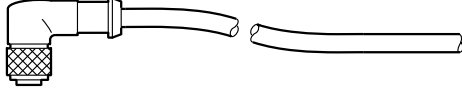
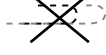
Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	+24V_O	DC 24 V output
2	STO -	STO - connection
3	0V24_O	0V24 reference potential
4	STO +	STO + connection
5	Res.	Reserved

Connection cable**INFORMATION**

Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18124976	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147690	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE/UL: 18164390	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	2 × 0.75 mm ² / DC 60 V

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18127398	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18153445	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE: 18164315	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V

Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18124976	STO –	Black	1
18147690	STO +	Black	2
18164390			
18127398			
18153445			
18164315			

3.3.4 X5503: STO

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, male, A-coded		
Wiring diagram		
Assignment		
No.	Name	Function
1	Res.	Reserved
2	STO -	STO - connection
3	Res.	Reserved
4	STO +	STO + connection
5	Res.	Reserved

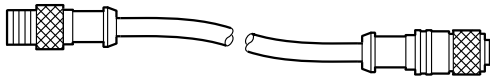
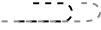
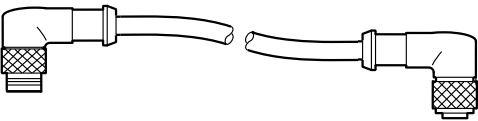
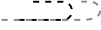
Connection cable

INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	

3.3.5 STO jumper plug

**▲ WARNING**

Safe disconnection of the MOVIGEAR® / DRC.. drive unit is not possible when the STO jumper plug is used.

Severe or fatal injuries.

- You may only use the STO jumper plug when the MOVIGEAR® / DRC.. drive unit does not fulfill any safety function.

**▲ WARNING**

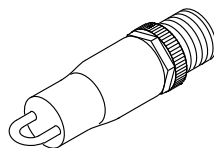
Disabling of safety-related disconnection of other drive units due to parasitic voltages when using an STO jumper.

Severe or fatal injuries.

- You may only use the STO jumper when all incoming and outgoing STO connections have been removed from the drive unit.

The STO jumper plug can be connected to the STO plug connector X5502 of MOVIGEAR® / DRC... The STO jumper plug deactivates the safety functions of the MOVIGEAR® / DRC.. drive unit.

The following figure shows the STO jumper plug, part number 11747099:



63050395932099851

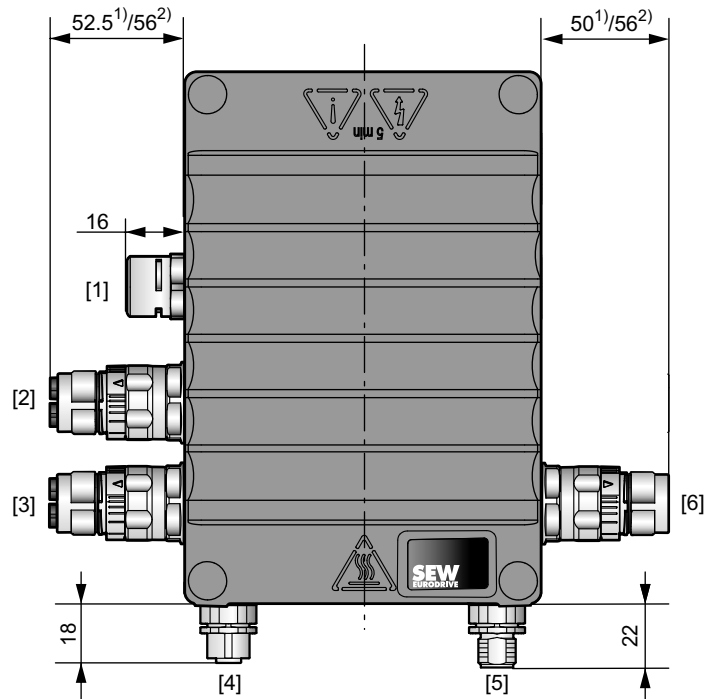
3.4 Dimension drawings for MOVIGEAR® DBC-B/DRC-DBC electronic motors

3.4.1 Plug connector

INFORMATION



- The following figure shows an example of the additional dimensions of the optional plug connectors for a possible plug connector configuration.
- For further information, refer to the chapter "Plug connector positions".



36028799691057035

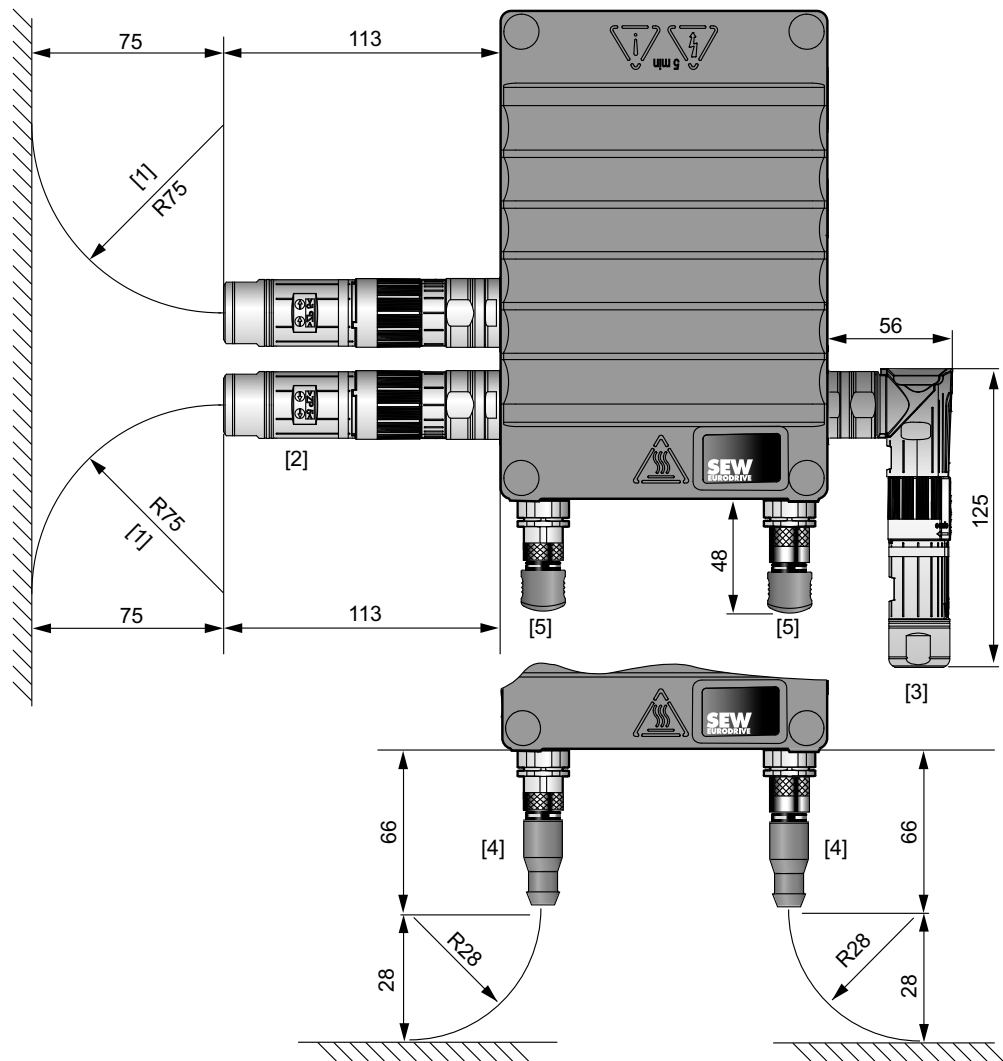
- 1) "Straight" plug connector variant
- 2) "Right-angle" plug connector variant
- [1] Pressure compensation fitting in connection with the optional package for wet areas (MOVIGEAR®)/ASEPTIC variant (DRC..).
- [2] X1203_2: AC 400 V connection
- [3] X1203_1: AC 400 V connection
- [4] X5502: STO – IN
- [5] X5503: STO – OUT
- [6] X5132: Digital inputs/outputs

3.4.2 Plug connector including mating connector

INFORMATION



- The following figure shows the additional dimensions/bending radii of the optional plug connectors including mating connector in connection with prefabricated cables from SEW-EURODRIVE.
- For more information, refer to the chapter "Plug connector positions".



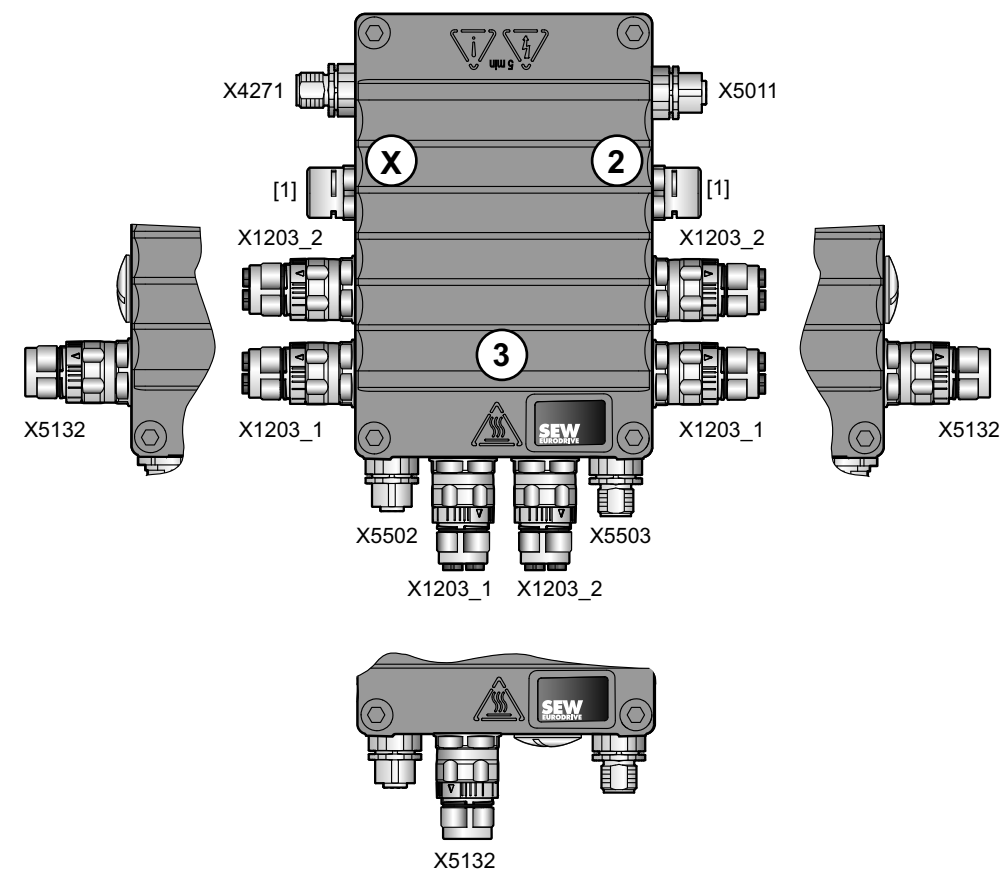
18014403293837579

- [1] Bending radius
- [2] "Straight" plug connector variant M23
- [3] "Right-angle" plug connector variant M23
- [4] "Straight" plug connector variant M12
- [5] "Right-angle" plug connector variant M12

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

4.1 Plug connector positions

The following figure shows possible plug connector positions:



27021600210283787

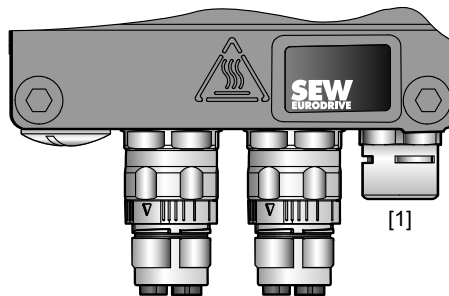
Plug connector	Position
X5132 Digital inputs/outputs	X, 2 or 3 not together at a position with: X1203_1, X1203_2
X5502 (orange) STO ¹⁾	3 (left)
X5503 (orange) STO ¹⁾	3 (right)
X4271 (yellow) AS-Interface communication interface ²⁾	X
X5011 (black) AS-Interface sensors ²⁾	2
X1203_1 (black) AC 400 V connection ³⁾	X, 2 or 3, not together at a position with: 5132

Plug connector	Position
X1203_2 (black) AC 400 V connection	Always corresponds to the selection of X1203_1
[1] Optional pressure compensation	Depends on mounting position

- 1) Plug connectors X5502 and X5503 can only be ordered together.
- 2) Standard scope of delivery
- 3) Plug connector X1203_1 is also available separately (i.e. without plug connector X1203_2).

4.2 Restrictions in conjunction with pressure compensation

In connection with optional pressure compensation and mounting positions M5 and M6, the position for the STO plug connectors is occupied by the pressure compensation fitting [1]. In this case, plug connectors for STO are not possible:

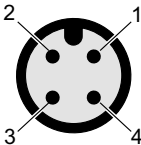


18014400955587339

4.3 Plug connector assignment

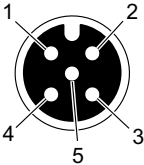
4.3.1 X4271: AS-Interface communication interface

The following table shows information about this connection:

Function		
Connection of AS-Interface data cable		
Connection type		
M12, 4-pin, male, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	AS+	AS-Interface data cable (+)
2	res.	Reserved
3	AS-	AS-Interface data cable (-)
4	res.	Reserved

4.3.2 X5011: AS-Interface sensor connection

The following table shows information about this connection:

Function		
Connection of AS-Interface sensors		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	+24 V_SEN	DC 24 V voltage supply for sensors
2	DI3	DI3 sensor input
3	0V24_SEN	0V24 reference potential for sensors
4	DI2	DI2 sensor input
5	res.	Reserved

4.4 Optional plug connector assignment



▲ WARNING

Electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries

- Switch off the power supply voltage.
- Never plug or unplug plug connectors while they are energized.

4.4.1 X1203_1 and X1203_2: AC 400 V connection

The following table shows information about this connection:

Function		
AC 400 V connection for supplying the unit/for looping through		
Connection type		
M23, SEW insert, SpeedTec-capable, company Intercontec, female, coding ring: black, protected against contact		
Wiring diagram		
Assignment		
No.	Name	Function
A	L1	Line connection phase L1
B	L2	Line connection phase L2
C	L3	Line connection phase L3
D	n.c.	Not connected
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved

23493666/EN – 04/2017

Connection cables

The following tables list the cables available for this connection:

Cable cross section 1.5 mm²

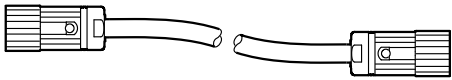
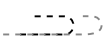
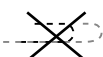
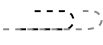
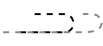
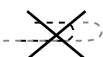
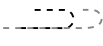
4

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 Open M23, coding ring: black, male	CE: 18180094	HELUKABEL® JZ-600	Variable 	1.5 mm² / AC 500 V

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

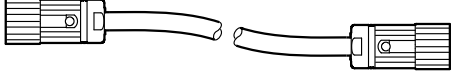
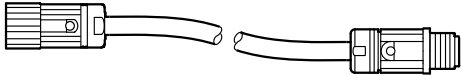
Optional plug connector assignment

Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male M23, coding ring: black, male	CE: 18127460	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133959 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153267	HELUKABEL® – JZ-602	Variable 	
	UL: 18153275	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open M23, coding ring: black, male	CE: 18127479	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133967 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153283	HELUKABEL® – JZ-602	Variable 	
	UL: 18153291	HELUKABEL® MULTIFLEX® – 512	Variable 	

23493666/EN – 04/2017

Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male	CE: 18127487	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133975 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153305	HELUKABEL® – JZ-602	Variable 	
	UL: 18153313	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open	CE: 18127495	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133983 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153321	HELUKABEL® – JZ-602	Variable 	
	UL: 18153348	HELUKABEL® MULTIFLEX® – 512	Variable 	
 M23, coding ring: black, male	UL: 18166318	HELUKABEL® MULTIFLEX® – 512	Variable 	4 mm ² / AC 500 V

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

Optional plug connector assignment

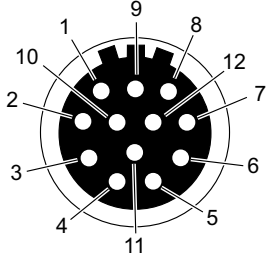
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18180094	L1	Black	1
18127479	L2	Black	2
18133967	L3	Black	3
18153283	PE	Green/yellow	–
18153291			
18127495			
18133983			
18153321			
18153348			

4.4.2 X5132: Digital inputs/outputs

The following table shows information about this connection:

Function		
Digital inputs/outputs for: MOVIGEAR® / DRC..		
Connection type		
M23, P insert 12-pin, SpeedTec-capable, company: Intercontec, female, 0° coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	DI01	Digital input DI01 (CW/stop)
2	DI02	Digital input DI02 (CCW/stop)
3	DI03	Digital input DI03 (setpoint f1/f2)
4	DI04	Digital input DI04 (changeover automatic/local mode)
5	Res.	Reserved
6	K1a	Signal relay K1a
7	K1b	Signal relay K1b
8	+24V_O	DC 24 V output
9	0V24_O	0V24 reference potential
10	Res.	Reserved
11	Res.	Reserved
12	FE	Equipotential bonding / functional earth

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

Optional plug connector assignment

Connection cable

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 Open M23, 12-pin, 0° coded, male	CE/UL: 11741457	Variable 	DC 60 V

Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding
11741457	DI01	Pink
	DI02	Gray
	DI03	Red
	DI04	Blue
	Reserved	Yellow
	K1a	Green
	K1b	Violet
	+24V_O	Black
	0V24_O	Brown
	Reserved	White
	Reserved	Gray/pink
	FE	Red/blue

23493666/EN – 04/2017

4.4.3 X5502: STO



⚠ WARNING

No safe disconnection of the MOVIGEAR® / DRC.. drive unit.
Severe or fatal injuries.

- Do not use the 24 V output (pins 1 and 3) for safety-related applications with MOVIGEAR® / DRC.. drive units.
- You may only jumper the STO connection with 24 V when the MOVIGEAR® / DRC.. drive unit is not used to fulfill any safety functions.

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
Assignment		
No.	Name	Function
1	+24V_O	DC 24 V output
2	STO -	STO - connection
3	0V24_O	0V24 reference potential
4	STO +	STO + connection
5	Res.	Reserved

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

Optional plug connector assignment

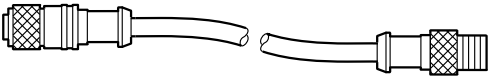
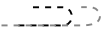
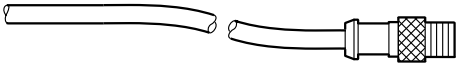
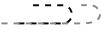
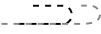
Connection cable

INFORMATION

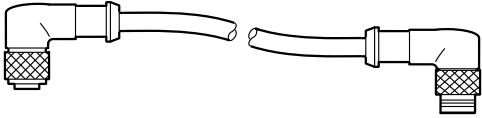
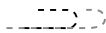
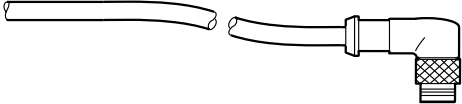
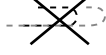
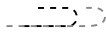
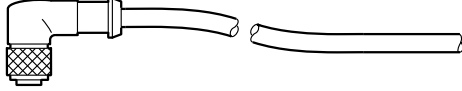


Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18124976	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm² / DC 60 V
	CE/UL: 18147690	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE/UL: 18164390	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	2 × 0.75 mm² / DC 60 V

23493666/EN – 04/2017

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18127398	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18153445	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE: 18164315	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V

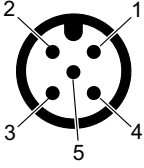
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18124976	STO -	Black	1
18147690	STO +	Black	2
18164390			
18127398			
18153445			
18164315			

4.4.4 X5503: STO

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, male, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	Res.	Reserved
2	STO -	STO - connection
3	Res.	Reserved
4	STO +	STO + connection
5	Res.	Reserved

4 MOVIGEAR® DAC-B/DRC-DAC electronic motor

Optional plug connector assignment

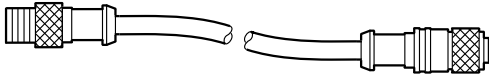
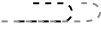
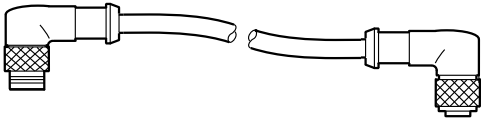
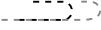
Connection cable

INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	

23493666/EN – 04/2017

4.4.5 STO jumper plug

**▲ WARNING**

Safe disconnection of the MOVIGEAR® / DRC.. drive unit is not possible when the STO jumper plug is used.

Severe or fatal injuries.

- You may only use the STO jumper plug when the MOVIGEAR® / DRC.. drive unit does not fulfill any safety function.

**▲ WARNING**

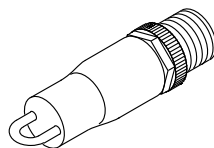
Disabling of safety-related disconnection of other drive units due to parasitic voltages when using an STO jumper.

Severe or fatal injuries.

- You may only use the STO jumper when all incoming and outgoing STO connections have been removed from the drive unit.

The STO jumper plug can be connected to the STO plug connector X5502 of MOVIGEAR® / DRC... The STO jumper plug deactivates the safety functions of the MOVIGEAR® / DRC.. drive unit.

The following figure shows the STO jumper plug, part number 11747099:



63050395932099851

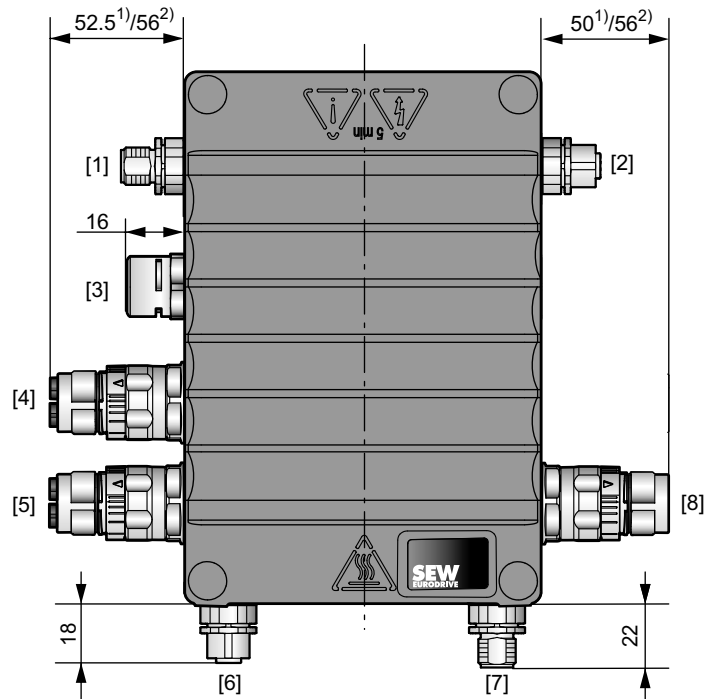
4.5 Dimension drawings for MOVIGEAR® DAC-B/DRC-DAC electronic motors

4.5.1 Plug connector

INFORMATION



- The following figure shows an example of the additional dimensions of the optional plug connectors for a possible plug connector configuration.
- For more information, refer to the chapter "Plug connector positions".



36028799659911819

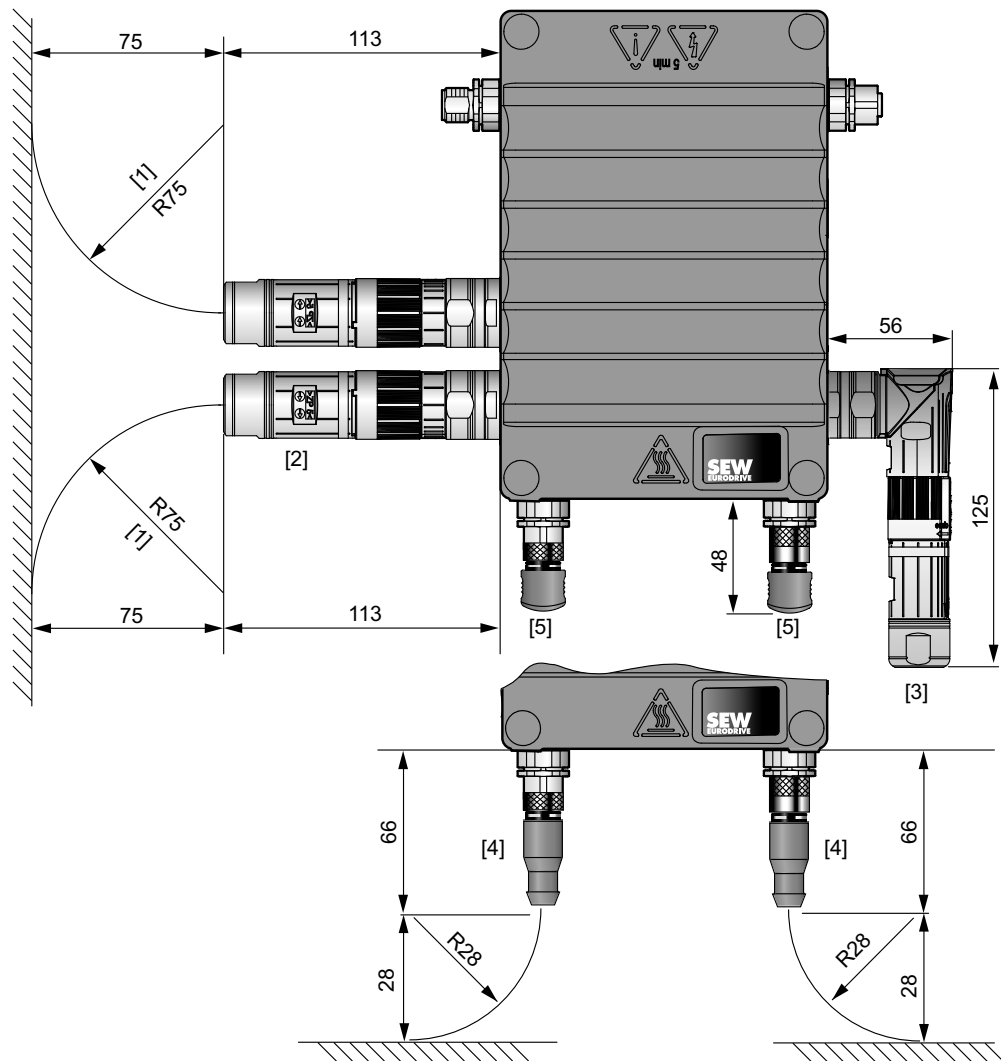
- 1) "Straight" plug connector variant
- 2) "Right-angle" plug connector variant
- [1] X4271: AS-Interface communication interface
- [2] X5011: AS-Interface sensors
- [3] Pressure compensation fitting in connection with the optional package for wet areas (MOVIGEAR®)/ASEPTIC variant (DRC..).
- [4] X1203_2: AC 400 V connection
- [5] X1203_1: AC 400 V connection
- [6] X5502: STO – IN
- [7] X5503: STO – OUT
- [8] X5132: Digital inputs/outputs

4.5.2 Plug connector including mating connector

INFORMATION



- The following figure shows the additional dimensions/bending radii of the optional plug connectors including mating connector in connection with prefabricated cables from SEW-EURODRIVE.
- For more information, refer to the chapter "Plug connector positions".



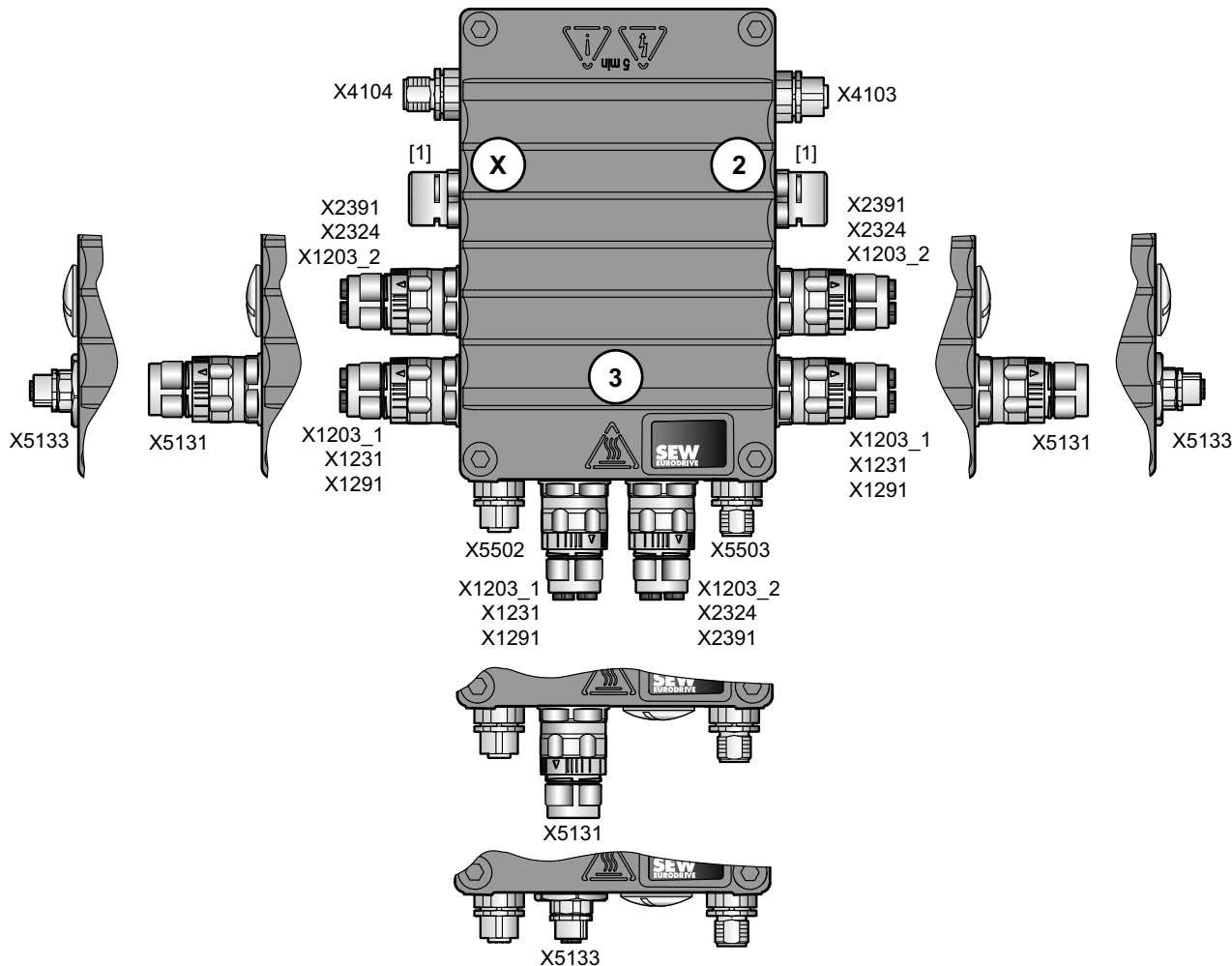
20072098187

- [1] Bending radius
- [2] "Straight" plug connector variant M23
- [3] "Right-angle" plug connector variant M23
- [4] "Straight" plug connector variant M12
- [5] "Right-angle" plug connector variant M12

5 MOVIGEAR® DSC-B/DRC-DSC electronic motor

5.1 Plug connector positions

The following figure shows possible plug connector positions:



45035998943245195

Plug connector	Position	Cannot be combined with plug connector
X5131 Digital inputs/outputs	X, 2 or 3, not together at a position with: - X1231/X2324 - X1203_1/X1203_2 - X1291/X2391	X5133
X5133 (black) Digital inputs/outputs	X, 2 or 3, not together at a position with: - X1231/X2324 - X1203_1/X1203_2 - X1291/X2391	X5131

23493666/EN – 04/2017

Plug connector	Position	Cannot be combined with plug connector
X5502 (orange) STO ¹⁾	3 (left)	X1291/X2391
X5503 (orange) STO ¹⁾	3 (right)	
X4104 (violet) CAN bus - system bus – input	X	X1291/X2391
X4103 (violet) CAN bus - system bus – output	2	
X1231 (violet) AC 400 V input and CAN bus ²⁾	X, 2 or 3, not together at a position with: X5131/X5133	- X1291/X2391 - X1203_1/X1203_2 - X4104/X4103
X2324 (violet) AC 400 V output and CAN bus	Always corresponds to the selection: X1231	
X1291 (violet/yellow) AC 400 V input and CAN bus, safe disconnection (STO) ³⁾	X, 2 or 3, not together at a position with: X5131/X5133	- X1203_1/X1203_2 - X1231/X2324 - X4104/X4103 - X5502/X5503
X2391 (violet/yellow) AC 400 V output, CAN bus, safe disconnection (STO)	Always corresponds to the selection: X1291	
X1203_1 (black) AC 400 V connection ⁴⁾	X, 2 or 3, not together at a position with: X5131/X5133	- X1291/X2391 - X1231/X2324
X1203_2 (black) AC 400 V connection	Always corresponds to the selection: X1203_1	
[1] Optional pressure compensation	Depends on mounting position	

1) Plug connectors X5502 and X5503 can only be ordered together.

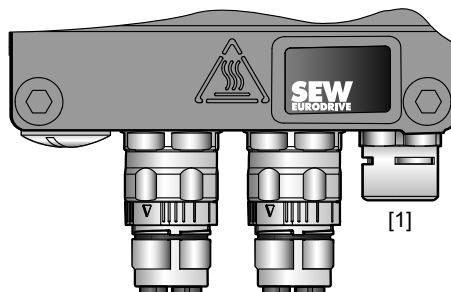
2) Plug connector X1231 can also be ordered separately (i.e. without plug connector X2324).

3) Plug connector X1291 can also be ordered separately (i.e. without plug connector X2391).

4) Plug connector X1203_1 can also be ordered separately (i.e. without plug connector X1203_2:).

5.2 Restrictions in conjunction with pressure compensation

In connection with optional pressure compensation and mounting positions M5 and M6, the position for the STO plug connectors is occupied by the pressure compensation fitting [1]. In this case, plug connectors for STO are not possible:



18014400955587339

5.3 Optional plug connector assignment



▲ **WARNING**

Electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries

- Switch off the power supply voltage.
- Never plug or unplug plug connectors while they are energized.

5

5.3.1 X1203_1 and X1203_2: AC 400 V connection

The following table shows information about this connection:

Function		
AC 400 V connection for supplying the unit/for looping through		
Connection type		
M23, SEW insert, SpeedTec-capable, company Intercontec, female, coding ring: black, protected against contact		
Wiring diagram		
Assignment		
No.	Name	Function
A	L1	Line connection phase L1
B	L2	Line connection phase L2
C	L3	Line connection phase L3
D	n.c.	Not connected
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved

5 MOVIGEAR® DSC-B/DRC-DSC electronic motor

Optional plug connector assignment

Connection cables

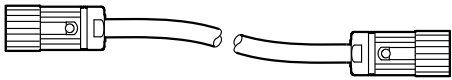
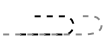
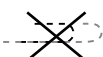
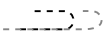
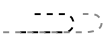
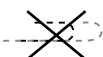
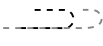
The following tables list the cables available for this connection:

Cable cross section 1.5 mm²

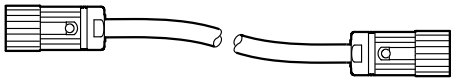
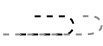
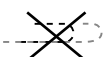
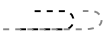
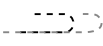
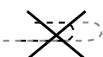
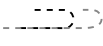
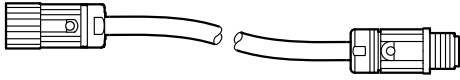
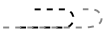
Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 Open M23, coding ring: black, male	CE: 18180094	HELUKABEL® JZ-600	Variable 	1.5 mm² / AC 500 V

23493666/EN – 04/2017

Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male M23, coding ring: black, male	CE: 18127460	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133959 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153267	HELUKABEL® – JZ-602	Variable 	
	UL: 18153275	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open M23, coding ring: black, male	CE: 18127479	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	2.5 mm ² / AC 500 V
	CE: 18133967 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153283	HELUKABEL® – JZ-602	Variable 	
	UL: 18153291	HELUKABEL® MULTIFLEX® – 512	Variable 	

Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: black, male	CE: 18127487	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133975 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153305	HELUKABEL® – JZ-602	Variable 	
	UL: 18153313	HELUKABEL® MULTIFLEX® – 512	Variable 	
 Open	CE: 18127495	HELUKABEL® TOPFLEX® – 600-PVC	Variable 	4 mm ² / AC 500 V
	CE: 18133983 Halogen- free	HELUKABEL® TOPFLEX® – 611-PUR	Variable 	
	UL: 18153321	HELUKABEL® – JZ-602	Variable 	
	UL: 18153348	HELUKABEL® MULTIFLEX® – 512	Variable 	
 M23, coding ring: black, male	UL: 18166318	HELUKABEL® MULTIFLEX® – 512	Variable 	4 mm ² / AC 500 V

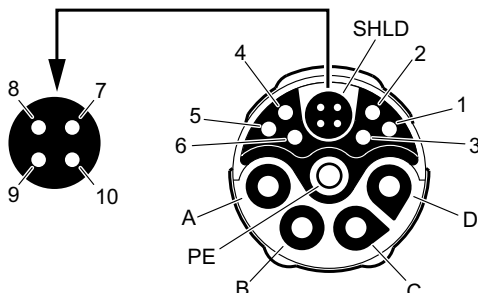
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18180094	L1	Black	1
18127479	L2	Black	2
18133967	L3	Black	3
18153283	PE	Green/yellow	–
18153291			
18127495			
18133983			
18153321			
18153348			

5.3.2 X1231: AC 400 V input and CAN bus

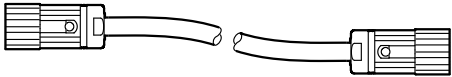
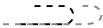
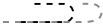
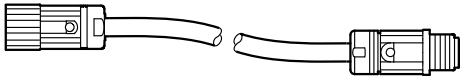
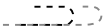
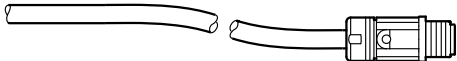
The following table shows information about this connection:

Function		
AC 400 V unit supply input, CAN bus (system bus)		
Connection type		
M23, SEW insert, SpeedTec-capable, company: Intercontec, female, coding ring: violet, protected against contact		
Wiring diagram		
		
Assignment		
No.	Name	Function
A	L1	Line connection phase L1
B	L2	Line connection phase L2
C	L3	Line connection phase L3
D	Res.	Reserved
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved
7	CAN_L	CAN data line (low)
8	CAN_GND	Reference potential CAN bus
9	CAN_H	CAN data line (high)
10	Res.	Reserved
SHLD	CAN_SHLD	Shield/equipotential bonding

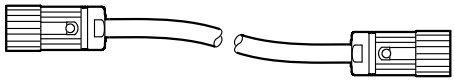
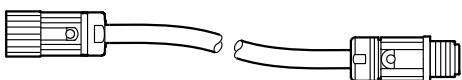
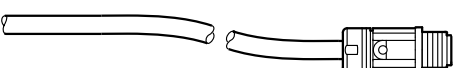
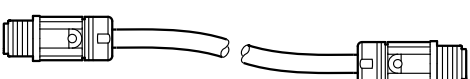
Connection cables

The following tables list the cables available for this connection:

Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type, see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: violet, male M23, coding ring: violet, male	CE/UL: 18127428	LEONI Type: LEHC 005221	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: violet, male	CE/UL: 18127436	LEONI Type: LEHC 005221	Variable 	2.5 mm ² / AC 500 V
 M23, coding ring: violet, male M23, coding ring: violet, female	CE/UL: 18166199	LEONI Type: LEHC 005221	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: violet, female	CE/UL: 18166490	LEONI Type: LEHC 005221	Variable 	2.5 mm ² / AC 500 V

Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type, see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: violet, male M23, coding ring: violet, male	CE/UL: 18127444	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: violet, male	CE/UL: 18127452	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 M23, coding ring: violet, male M23, coding ring: violet, female	CE/UL: 18166202	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: violet, female	CE/UL: 18166504	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 M23, coding ring: violet, female M23, coding ring: violet, female	CE/UL: 18189652	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V

Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18127436	L1	Black	1
18166490	L2	Black	2
18127452	L3	Black	3
18166504	PE	Green/yellow	–
	CAN_L	Blue	–
	CAN_GND	Black	–
	CAN_H	White	–

5.3.3 X2324: AC 400 V output and CAN bus

The following table shows information about this connection:

Function
AC 400 V output for looping, CAN bus (system bus)
Connection type
M23, SEW insert, SpeedTec-capable, company: Intercontec, female, coding ring: Violet, protected against contact
Wiring diagram

No.	Name	Function
A	L1	Line connection phase L1
B	L2	Line connection phase L2
C	L3	Line connection phase L3
D	Res.	Reserved
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved
7	CAN_L	CAN data line (low)
8	CAN_GND	Reference potential CAN bus
9	CAN_H	CAN data line (high)
10	Res.	Reserved
SHLD	CAN_SHLD	Shield/equipotential bonding CAN bus



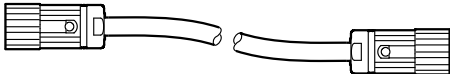
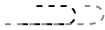
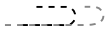
INFORMATION

When the bus terminating resistor is activated, the CAN bus is separated toward the output end. This is why the input and output end of plug connectors must not be exchanged.

Connection cables

The following tables list the cables available for this connection:

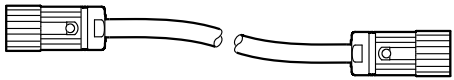
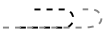
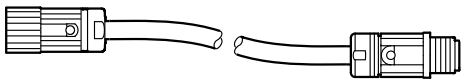
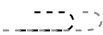
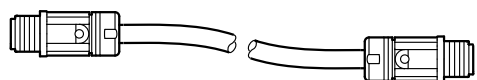
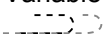
Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type, see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: violet, male M23, coding ring: violet, male	CE/UL: 18127428	LEONI Type: LEHC 005221	Variable 	2.5 mm² / AC 500 V
 M23, coding ring: violet, male M23, coding ring: violet, female	CE/UL: 18166199	LEONI Type: LEHC 005221	Variable 	2.5 mm² / AC 500 V

5 MOVIGEAR® DSC-B/DRC-DSC electronic motor

Optional plug connector assignment

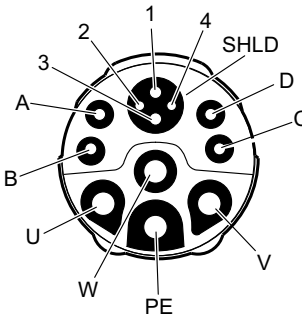
Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type, see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: violet, male M23, coding ring: violet, male	CE/UL: 18127444	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 M23, coding ring: violet, male M23, coding ring: violet, female	CE/UL: 18166202	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V
 M23, coding ring: violet, female M23, coding ring: violet, female	CE/UL: 18189652	LEONI Type: LEHC 005211	Variable 	4 mm ² / AC 500 V

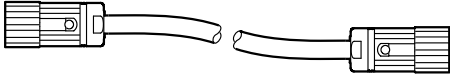
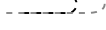
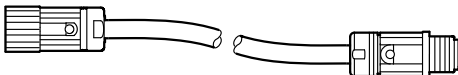
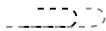
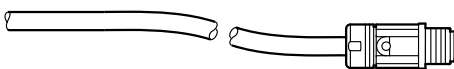
23493666/EN – 04/2017

5.3.4 X1291: AC 400 V input, CAN bus, safe disconnection (STO)

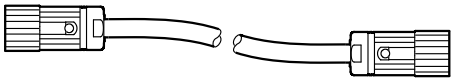
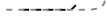
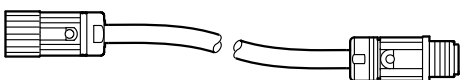
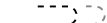
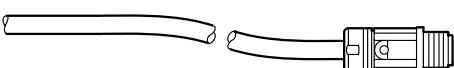
The following table shows information about this connection:

Function		
AC 400 V unit supply input, CAN bus (system bus), safe disconnection (STO)		
Connection type		
M23, SEW insert, female, SpeedTec-capable, company: Intercontec, coding ring: Violet/yellow, protected against contact		
Wiring diagram		
		
Assignment		
No.	Name	Function
U	L1	Line connection phase L1
V	L2	Line connection phase L2
W	L3	Line connection phase L3
PE	PE	PE connection
A	STO+	STO+ connection
B	STO-	STO- connection
C	Res.	Reserved
D	Res.	Reserved
1	CAN_L	CAN data line (low)
2	CAN_GND	Reference potential CAN bus
3	CAN_H	CAN data line (high)
4	Res.	Reserved
SHLD	Shield	Shield/equipotential bonding

Connection cableCable cross section 2.5 mm²

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177867	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: yellow, male	CE/UL: 18191134	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177883	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: yellow, female	CE/UL: 18191401	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V

Cable cross section 4 mm²

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177875	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: yellow, male	CE/UL: 18191142	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177891	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: yellow, female	CE/UL: 18191428	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V

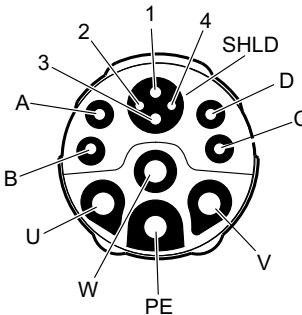
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18191134	L1	Black	U/L1
18191401	L2	Black	V/L2
18191142	L3	Black	W/L3
18191428	PE	Green/yellow	–
	STO+	Black	2
	STO-	Black	1
	CAN_L	Blue	–
	CAN_GND	Drain wire	–
	CAN_H	White	–

5.3.5 X2391: AC 400 V output, CAN bus, safe disconnection (STO)

The following table shows information about this connection:

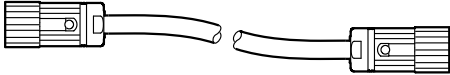
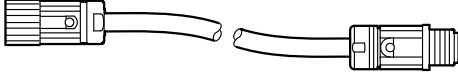
Function		
AC 400 V output for looping, CAN bus (system bus), safe disconnection (STO)		
Connection type		
M23, SEW insert, female, SpeedTec-capable, company: Intercontec, coding ring: Violet/yellow, protected against contact		
Wiring diagram		
		
Assignment		
No.	Name	Function
U	L1	Line connection phase L1
V	L2	Line connection phase L2
W	L3	Line connection phase L3
PE	PE	PE connection
A	STO+	STO+ connection
B	STO-	STO- connection
C	Res.	Reserved
D	Res.	Reserved
1	CAN_L	CAN data line (low)
2	CAN_GND	Reference potential CAN bus
3	CAN_H	CAN data line (high)
4	Res.	Reserved
SHLD	Shield	Shield/equipotential bonding

INFORMATION

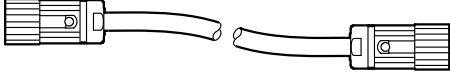
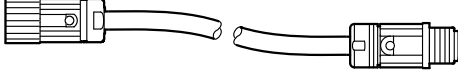
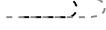


When the bus terminating resistor is activated, the CAN bus is separated toward the output end. This is why the input and output end of plug connectors must not be exchanged.

Connection cable*Connection cable 2.5 mm²*

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177867	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177883	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V

Connection cable 4 mm²

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177875	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177891	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V

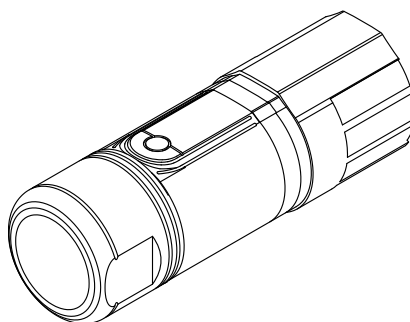
Bus terminating resistor

As standard, the terminating resistor at the last bus station is activated using a DIP switch on the connection board (see operating instructions).

Instead, the following terminating resistor (120 Ω) can be used matching the plug connector "X2391: AC 400 V output, CAN bus, safe disconnection (STO)":

- Part number: 18195091
- Coding ring: Violet/yellow
- Degree of protection: IP66
- Conformity: CE/UL

The following figure shows the terminating resistor:



20249787403

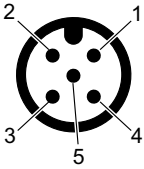
5.3.6 X4104: CAN bus – system bus – input

INFORMATION



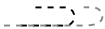
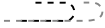
To ensure a continuous connection from the housing to the unit, use CAN connection cables whose shield is connected with the connector housing in such a way that it is EMC capable.

The following table shows information about this connection:

Function		
CAN bus (system bus) – input		
Connection type		
M12, 5-pin, male, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	Drain	Shield/equipotential bonding CAN bus
2	Res.	Reserved
3	CAN_GND	Reference potential CAN bus
4	CAN_H	CAN data line (high)
5	CAN_L	CAN data line (low)

Connection cables

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 13286331	5 m 	DC 60 V
	CE: 13286358	10 m 	
	CE: 13286366	15 m 	
 M12, 5-pin, A-coded, female Open	CE: 13295810	5 m 	DC 60 V
	CE: 19129270	10 m 	
	CE: 19129289	15 m 	

Connection of cables with open ends

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding
13281402	CAN_SHLD	Gray
13281410	+5V_CAN	Red
13281429	CAN_GND	Black
	CAN_H	White
	CAN_L	Blue

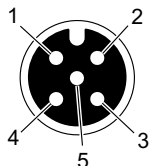
5.3.7 X4103: CAN bus – system bus – output

INFORMATION



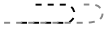
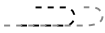
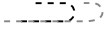
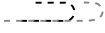
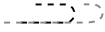
To ensure a continuous connection from the housing to the unit, use CAN connection cables whose shield is connected with the connector housing in such a way that it is EMC capable.

The following table shows information about this connection:

Function		
CAN bus (system bus) – output		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	Drain	Shield/equipotential bonding CAN bus
2	Res.	Reserved
3	CAN_GND	Reference potential CAN bus
4	CAN_H	CAN data line (high)
5	CAN_L	CAN data line (low)

Connection cables

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 13286331	5 m 	DC 60 V
	CE: 13286358	10 m 	
	CE: 13286366	15 m 	
 Open M12, 5-pin, A-coded, male	CE: 13281402	5 m 	DC 60 V
	CE: 13281410	10 m 	
	CE: 13281429	15 m 	

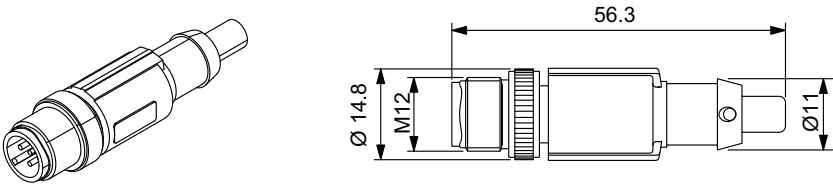
Bus terminating resistor

As standard, the terminating resistor at the last bus station is activated using a DIP switch on the connection board (see operating instructions).

Instead, the following terminating resistor (120 Ω) can be used matching the plug connector "X4103: CAN bus – system bus – output:

- Part number: 13287036
- Color: Black
- Degree of protection: IP65

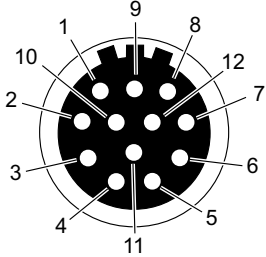
The figure below shows the dimensions of the terminating resistor:



20202747915

5.3.8 X5131: Digital inputs/outputs

The following table shows information about this connection:

Function			
Digital inputs/outputs – Motion Control MOVIGEAR® / DRC..			
Connection type			
M23, P insert, 12-pin, SpeedTec-capable, Intercontec, female, 0° coded			
Wiring diagram			
			
Assignment			
No.	Name	Function Motion control inputs DIP switch S2/3 = OFF	Function Local mode DIP switch S2/3 = ON
1	DI01	DI01 sensor input	CW/stop
2	DI02	DI02 sensor input	CCW/stop
3	DI03	DI03 sensor input	Setpoint f1/f2
4	DI04	DI04 sensor input	Changeover Automatic/local mode
5	Res.	Reserved	Reserved
6	Res.	Reserved	Reserved
7	Res.	Reserved	Reserved
8	+24V_O	Reserved	DC 24 V output
9	0V24V_O	Reserved	0V24 reference potential
10	0V24V_SEN	0V24 reference potential for sensors ¹⁾ Must be supplied via terminals X7.4	Reserved
11	+24 V_SEN	DC 24 V sensor supply ¹⁾ Must be supplied via terminals X7.3	Reserved
12	FE	Equipotential bonding / functional earth	Equipotential bonding / functional earth

¹⁾ See operating instructions, chapter "Connecting the drive unit MOVIGEAR® / DRC..".

INFORMATION

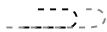


Use actuator/sensor distributors with 4 slots for the sensor inputs. Use the DC 24 V output only for local mode.

Connection cable

5

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 Open M23, 12-pin, 0 °coded, male	CE/UL: 11741457	Variable 	DC 60 V

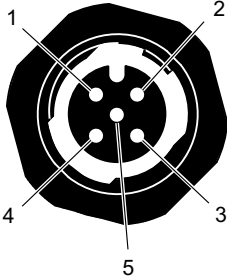
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding
11741457	DI01	Pink
	DI02	Gray
	DI03	Red
	DI04	Blue
	Reserved	Yellow
	Reserved	Green
	Reserved	Violet
	+24V_O	Black
	0V24_O	Brown
	0V24_SEN	White
	+24 V_SEN	Gray/pink
	FE	Red/blue

5.3.9 X5133: Digital inputs/outputs

The following table shows information about this connection:

Function			
Digital inputs/outputs - MotionControl MOVIGEAR® / DRC..			
Connection type			
M12, 5-pole, female, A-coded			
Wiring diagram			
			
Assignment			
No.	Name	Function Motion control inputs DIP switch S2/3 = OFF	Function Local mode DIP switch S2/3 = ON
1	+24 V_SEN	DC 24 V sensor supply ¹⁾ Must be supplied via terminals X7.3	Function is not supported
2	DI01	DI01 sensor input	
3	0V24V_SEN	0V24 reference potential for sensors ¹⁾ Must be supplied via terminals X7.4	
4	DI02	Sensor input DI02 (touchprobe input)	
5	FE	Equipotential bonding / functional earth	

¹⁾ See operating instructions, chapter "Connecting the drive unit MOVIGEAR® / DRC..".

5.3.10 X5502: STO



▲ WARNING

No safe disconnection of the MOVIGEAR® / DRC.. drive unit.
Severe or fatal injuries.

- Do not use the 24 V output (pins 1 and 3) for safety-related applications with MOVIGEAR® / DRC.. drive units.
- You may only jumper the STO connection with 24 V when the MOVIGEAR® / DRC.. drive unit is not used to fulfill any safety functions.

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
Assignment		
No.	Name	Function
1	+24V_O	DC 24 V output
2	STO -	STO - connection
3	0V24_O	0V24 reference potential
4	STO +	STO + connection
5	Res.	Reserved

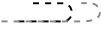
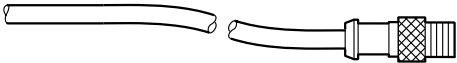
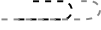
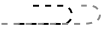
Connection cable

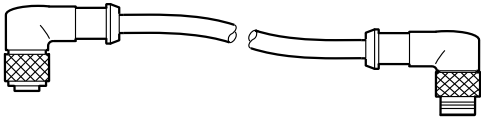
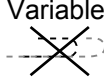
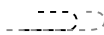
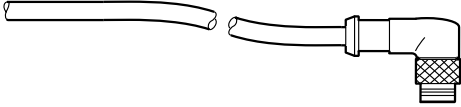
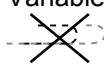
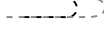
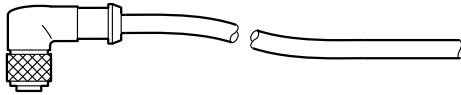
INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18124976	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147690	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE/UL: 18164390	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	2 × 0.75 mm ² / DC 60 V

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18127398	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18153445	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE: 18164315	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V

Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18124976	STO –	Black	1
18147690	STO +	Black	2
18164390			
18127398			
18153445			
18164315			

5.3.11 X5503: STO

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, male, A-coded		
Wiring diagram		
Assignment		
No.	Name	Function
1	Res.	Reserved
2	STO -	STO - connection
3	Res.	Reserved
4	STO +	STO + connection
5	Res.	Reserved

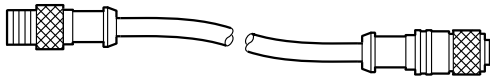
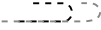
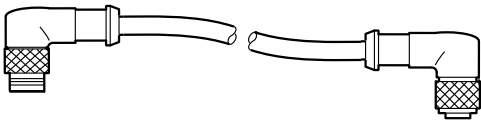
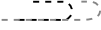
Connection cable

INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, male	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, male	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	

5.3.12 STO jumper plug

**▲ WARNING**

Safe disconnection of the MOVIGEAR® / DRC.. drive unit is not possible when the STO jumper plug is used.

Severe or fatal injuries.

- You may only use the STO jumper plug when the MOVIGEAR® / DRC.. drive unit does not fulfill any safety function.

**▲ WARNING**

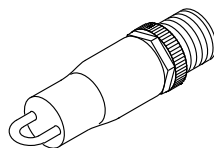
Disabling of safety-related disconnection of other drive units due to parasitic voltages when using an STO jumper.

Severe or fatal injuries.

- You may only use the STO jumper when all incoming and outgoing STO connections have been removed from the drive unit.

The STO jumper plug can be connected to the STO plug connector X5502 of MOVIGEAR® / DRC... The STO jumper plug deactivates the safety functions of the MOVIGEAR® / DRC.. drive unit.

The following figure shows the STO jumper plug, part number 11747099:



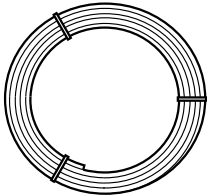
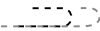
63050395932099851

5.4 Connection cables

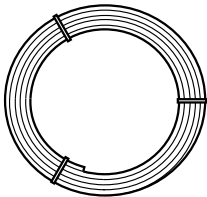
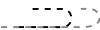
5.4.1 Recommended hybrid cables AC 400 V and communication (DSC)

The following tables show the recommended hybrid cables AC 400 V and communication:

Cable cross section 2.5 mm²

Recommended hybrid cables				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19129173	LEONI Type: LEHC 005221	Fixed 	2.5 mm ² / AC 500 V

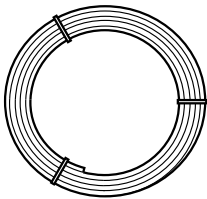
Cable cross section 4 mm²

Recommended hybrid cables				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19122489	LEONI Type: LEHC 005211	Fixed 	4 mm ² / AC 500 V

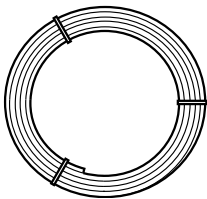
5.4.2 Hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)

The following tables show the hybrid cables available for AC 400 V, communication, and safe disconnection (STO):

Cable cross section 2.5 mm²

Hybrid cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/ operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19162812	LEONI Type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V

Cable cross section 4 mm²

Hybrid cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/ operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19162820	LEONI Type: LEHC 005296	Variable 	4 mm ² / AC 500 V

5.5 Specification of recommended CAN connection cable (DSC)

When individual CAN connection cables are used, SEW-EURODRIVE recommends the cable type "Belden 9841/LOW-capacitance computer cable for EIA".

5.5.1 Description

24 AWG stranded TC wire, insulated with polyethylene, drilled, shielded with Beldfoil® (100%) + TC braid (90% shielding), 24 AWG stranded TC drain wire, PVC sheath.

5.5.2 Physical properties (in total)

Conductor: AWG			
Twisted-pairs	AWG	Stranding	Conductor material
1	24	7x32	TC – tinned copper

5.5.3 Mechanical properties (in total)

Mechanical properties (in total)	
Operating temperature	-30 °C to +80 °C
Nominal UL operating temperature	80 °C
Weight of raw cable	36 lbs/1000 ft.
Max. recommended tensile stress	72.3 lbs.
Min. bending radius of secondary axis	2.5 inch

Applicable specifications and compliance with regulatory specifications (total)	
Applicable standards	
NEC/(UL) specification	CM
CEC/C(UL) specification	CM
AWM specification	UL style 2919 (30 V 80°)
EU CE mark (Y/N)	Yes
EU RoHS compliant (Y/N)	Yes
EU RoHS compliance date (MM/DD/YYYY)	01/01/2004
Plenum / Non-Plenum: Plenum (Y/N)	No
Plenum number	82841, 89841

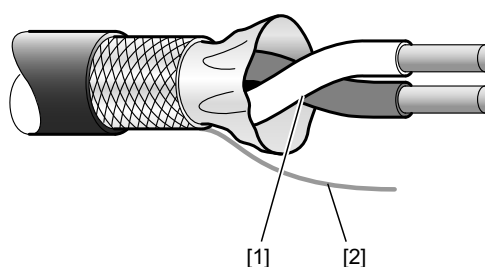
5.5.4 Electrical properties (in total)

Electrical properties (in total)	
Characteristic rated impedance Impedance (ohms)	120

Electrical properties (in total)	
Nominal capacitance conductor/conductor Capacitance (pF/ft)	12.8
Nominal capacitance conductor/other conductor & shield Capacitance (pF/ft)	23.0
Nominal propagation speed VP (%)	66
Nominal delay time Delay (ns/ft)	1.6
Nominal value of the direct current resistance of the conductor Nominal DC resistance at 20 °C (ohm/1000 ft)	24.0
Nominal value of the direct current resistance of the outer shield Nominal DC resistance at 20 °C (ohm/1000 ft)	3.4
Nominal attenuation Attenuation (dB/100ft)	0.6 (at 1 MHz)
Max. operating voltage – UL Voltage	300 V RMS 20 V RMS (UL AWM Style 2919)
Max. recommended amperage Amperage	2.1 A per conductor at 25 °C

5.5.5 Notes on connection

The following figure shows the cable design and use of connections:

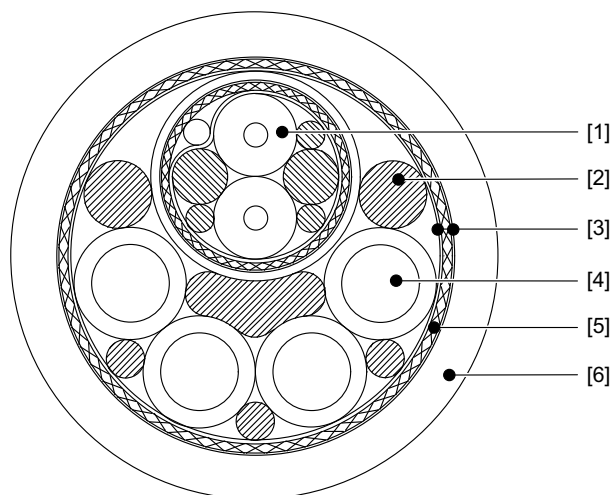


5841958411

- [1] CAN_H/CAN_L connection
- [2] CAN_GND connection via drain wire

5.6 Specification of recommended hybrid cables AC 400 V and communication (DSC)

SEW-EURODRIVE recommends the following hybrid cables for connecting DSC drive units MOVIGEAR® / DRC.. and controller. The following figure shows the structure of the hybrid cable:



19915242379

	Type: Leoni LEHC 005221 Rev.0	Type: Leoni LEHC 005211 Rev.0
[1]	1 conductor pair	2 x 0.24 mm ²
	Conductor	Stranded copper wire, blank, 19 x 0.127 mm
	Insulation	Polypropylene
	Colors	White and blue
	Shield	Banding
	Drain wire	0.34 mm ²
	Conductor	Stranded copper wire, blank, 19 x 0.15 mm
	Shield	Braided copper wire, 0.1 mm, tinned
	Optical coverage	min. 85%
	Sheath	TPE
	Color	Violet
[2]	Filler	
[3]	Banding	

	Type: Leoni LEHC 005221 Rev.0		Type: Leoni LEHC 005211 Rev.0	
[4]	4 conductors	2.5 mm ²	4 conductors	4.0 mm ²
	Conductor	Stranded copper wire, blank, 147 x 0.15 mm	Conductor	Stranded copper wire, blank, 224 x 0.15 mm
	Insulation	Polypropylene	Insulation	Polypropylene
	Colors	Green/yellow, black with lettering 1; 2; 3	Colors	Green/yellow, black with lettering 1; 2; 3
[5]	Shield	Braided tinned copper wires, 0.128 mm		
	Optical coverage	min. 85%		
[6]	Outer cable sheath	Polyurethane		
	Color	Black matte (similar to RAL9005)		

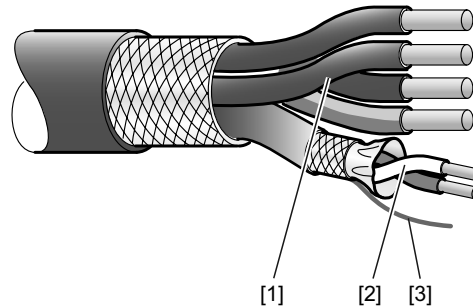
5.6.1 Technical data of hybrid cables

The following table shows the technical data of the hybrid cable:

Properties	Type: Leoni LEHC 005221 Rev.0	Type: Leoni LEHC 005296 Rev.2
UL features	UL style 20234, 80 °C, 1000 V E47543-LIL  certified	
Test voltage core/core	4.0 kV 50 Hz AC	
Test voltage core/shield	3.0 kV 50 Hz AC	
Operating voltage	1000 V	
Position [4]		
Wave impedance	120 Ω ± 10%	
Position [1]		
Attenuation	Nom. 2.0 dB/100 m at 1 MHz	
Position [1]	Nom. 5.5 dB/100 m at 10 MHz	
Runtime	Nom. 5 ns/m	
Position [1]		
Operating temperature	-30 °C to +80 °C (fixed installation) -25 °C to +80 °C (cable carrier)	
Weight of cable	Nom. 279 g/m	Nom. 428 g/m
Bending radii	Min. 5 x outer diameter (fixed installation) Min. 10 x outer diameter (cable carrier)	
Cable diameter	13.5 mm	14.9 mm
Chemical properties	Flame retardant Halogen-free	

5.6.2 Notes on connection

The following figure shows the cable design and use of connections:

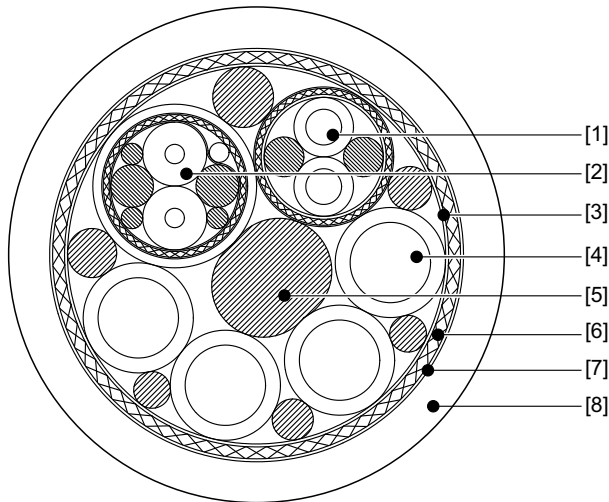


6580241163

- [1] Connection for supply system/PE
- [2] CAN_H/CAN_L connection
- [3] CAN_GND connection via drain wire

5.7 Specification of hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)

The following figure shows the structure of the hybrid cable:



9007219046263179

	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
[1]	1 core pair Conductor Insulation Colors	0.75 mm ² Stranded copper wire, 42 x 0.15 mm Polypropylene Black cores with white digits 1, 2
	Shield Optical cover- age	Braided copper wire, 0.1 mm, tinned min. 85%
	Sheath	Banding
[2]	1 core pair Conductor Insulation Colors Shield	2 x 0.24 mm ² Stranded copper wire, blank, 19 x 0.127 mm Polypropylene White and blue Banding
	Drain wire Conductor	0.34 mm ² Stranded copper wire, blank, 19 x 0.15 mm
	Shield Optical cover- age	Braided copper wire, 0.10 mm, tinned min. 85%
	Sheath Color	TPE Violet
[3]	Banding	

	Type: Leoni LEHC 005295 Rev.2		Type: Leoni LEHC 005296 Rev.2	
[4]	4 cores Conductor Insulation Colors	2.5 mm ² Stranded copper wire, blank, 147 x 0.15 mm Polypropylene Green/yellow, black with lettering U/L1; V/ L2; W/L3	4 cores Conductor Insulation Colors	4.0 mm ² Stranded copper wire, blank, 224 x 0.15 mm Polypropylene Green/yellow, black with lettering U/L1; V/ L2; W/L3
[5]	Filler			
[6]	Shield Optical cover- age	Braided tinned copper wires, 0.15 mm min. 87%	Shield Optical cover- age	Braided tinned copper wires, 0.20 mm min. 87%
[7]	Banding	EMC fleece		
[8]	Outer cable sheath Color	Polyurethane Orange (similar to RAL2003)		

5.7.1 Technical data of hybrid cables

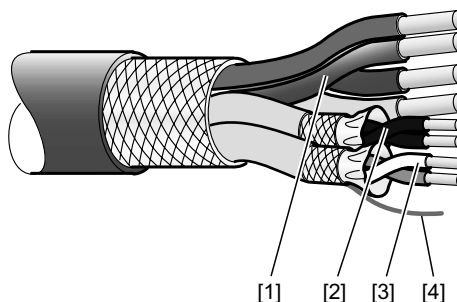
The following table shows the technical data of the hybrid cable:

Properties	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
UL features	UL style 20234, 80 °C, 1000 V E47543-LIL  certified	
Test voltage core/core	4.0 kV 50 Hz AC	
Test voltage core/shield	3.0 kV 50 Hz AC	
Operating voltage Position [4]	1000 V	
Wave impedance Position [2]	125 Ω ±10%	
Attenuation Position [2]	Nom. 2.5 dB/100 m at 1 MHz Nom. 6.5 dB/100 m at 10 MHz	
Runtime Position [2]	Nom. 5 ns/m	
Operating temperature	-30 °C to +80 °C (fixed installation) -25 °C to +80 °C (cable carrier)	
Weight of cable	Nom. 342 g/m	Nom. 428 g/m
Bending radii	Min. 5 x outer diameter (fixed installation) Min. 10 x outer diameter (cable carrier)	

Properties	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
Cable diameter	15.6 mm ± 0.5 mm	16.7 mm ± 0.5 mm
Chemical properties	- Oil resistance according to DIN VDE 0282-10/ HD 22.10 S2 - General fuel resistance (e.g. diesel, gasoline) - Flame retardant according to UL 1581 section 1060 Vertical Flame Test (FT1) - Flame retardant according to CSA C22.2 No.3-92 Vertical Flame Test (FT1) - Flame retardant according to IEC 60332-1-2 - Halogen-free according to IEC 60754-1 - General resistance to acids, alkalis, and cleaning agents - General hydrolytic resistance - General resistance against UV radiation - Free from paint-wetting impairment substances	

5.7.2 Notes on connection

The following figure shows the cable design and use of connections:



19800410891

- [1] Connection for supply system/PE
- [2] STO connection
- [3] CAN_H/CAN_L connection
- [4] CAN_GND connection via drain wire

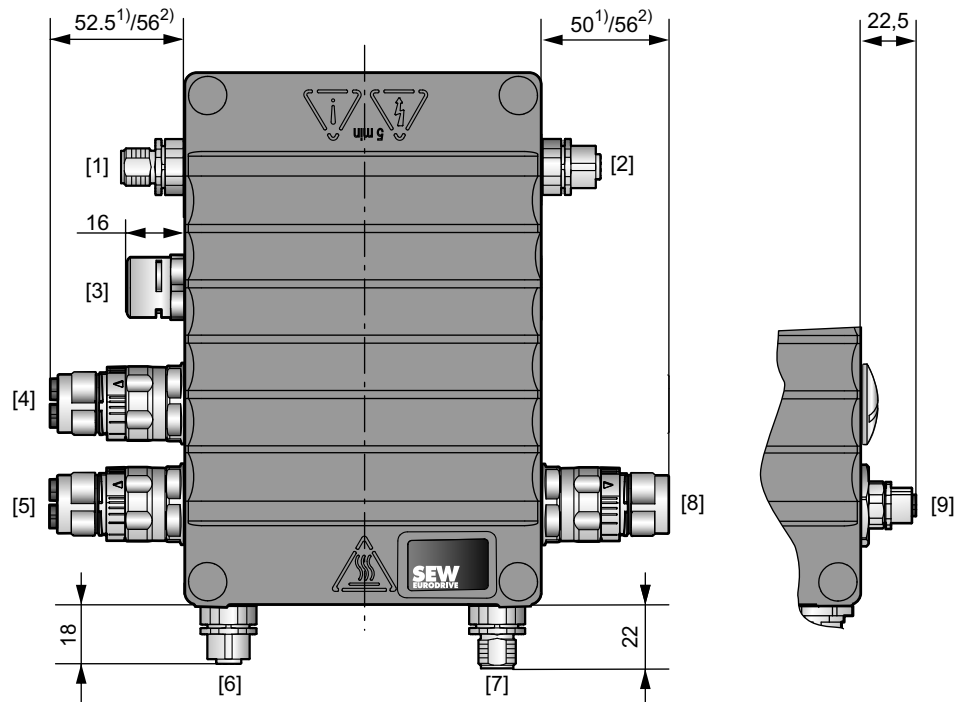
5.8 Dimension drawings for MOVIGEAR® DSC-B/DRC-DSC electronic motors

5.8.1 Plug connector

INFORMATION



- The following figure shows an example of the additional dimensions of the optional plug connectors for a possible plug connector configuration.
- For more information, refer to the chapter "Plug connector positions".



19935344395

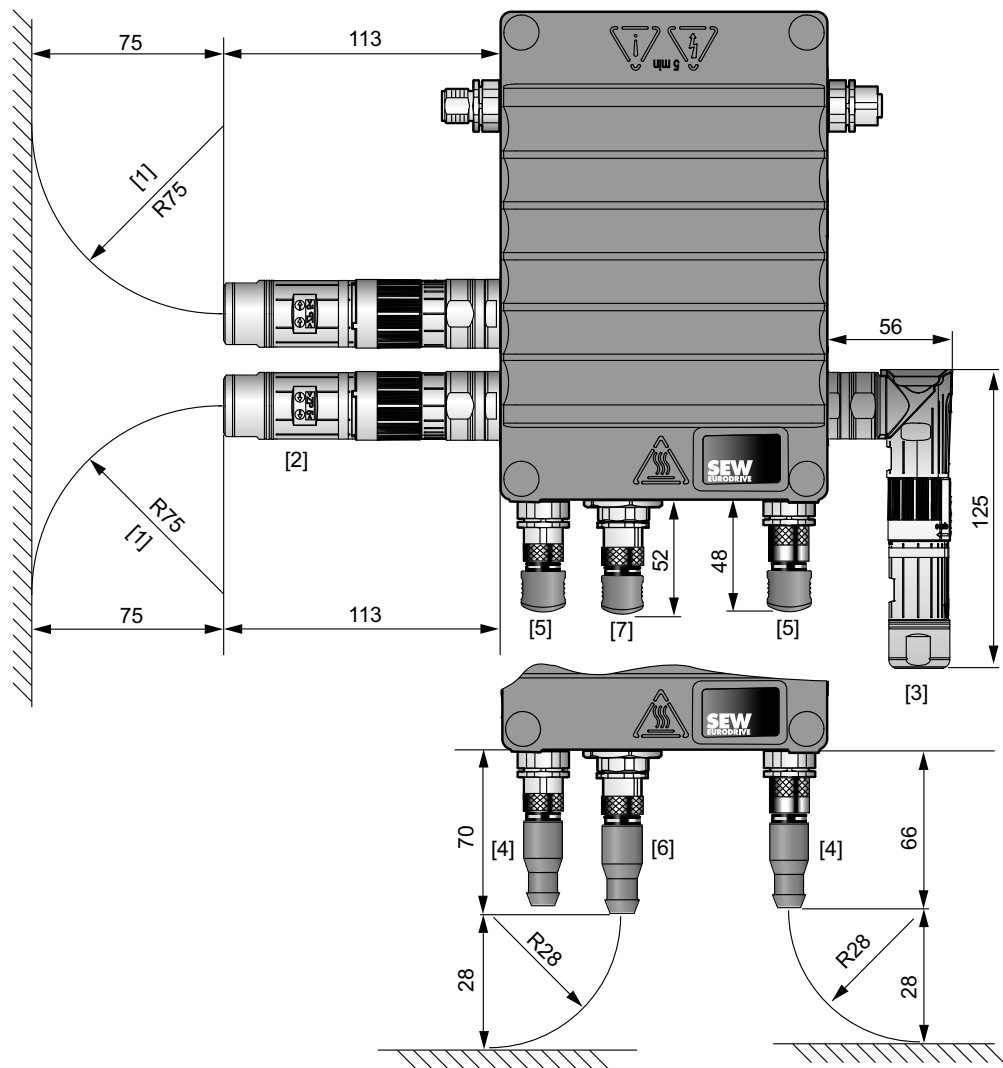
- 1) "Straight" plug connector variant
- 2) "Right-angle" plug connector variant
- [1] X4104: CAN bus - system bus – input
- [2] X4103: CAN bus - system bus – output
- [3] Pressure compensation fitting in connection with the optional package for wet areas (MOVIGEAR®)/ASEPTIC variant (DRC..).
- [4] X1203_2: AC 400 V connection/X1231: AC 400 V output and CAN bus
- [5] X1203_1: AC 400 V connection/X2324: AC 400 V input and CAN bus
- [6] X5502: STO – IN
- [7] X5503: STO – OUT
- [8] X5131: Digital inputs/outputs
- [9] X5133: Digital inputs/outputs

5.8.2 Plug connector including mating connector

INFORMATION



- The following figure shows the additional dimensions/bending radii of the optional plug connectors including mating connector in connection with prefabricated cables from SEW-EURODRIVE.
- For more information, refer to the chapter "Plug connector positions".



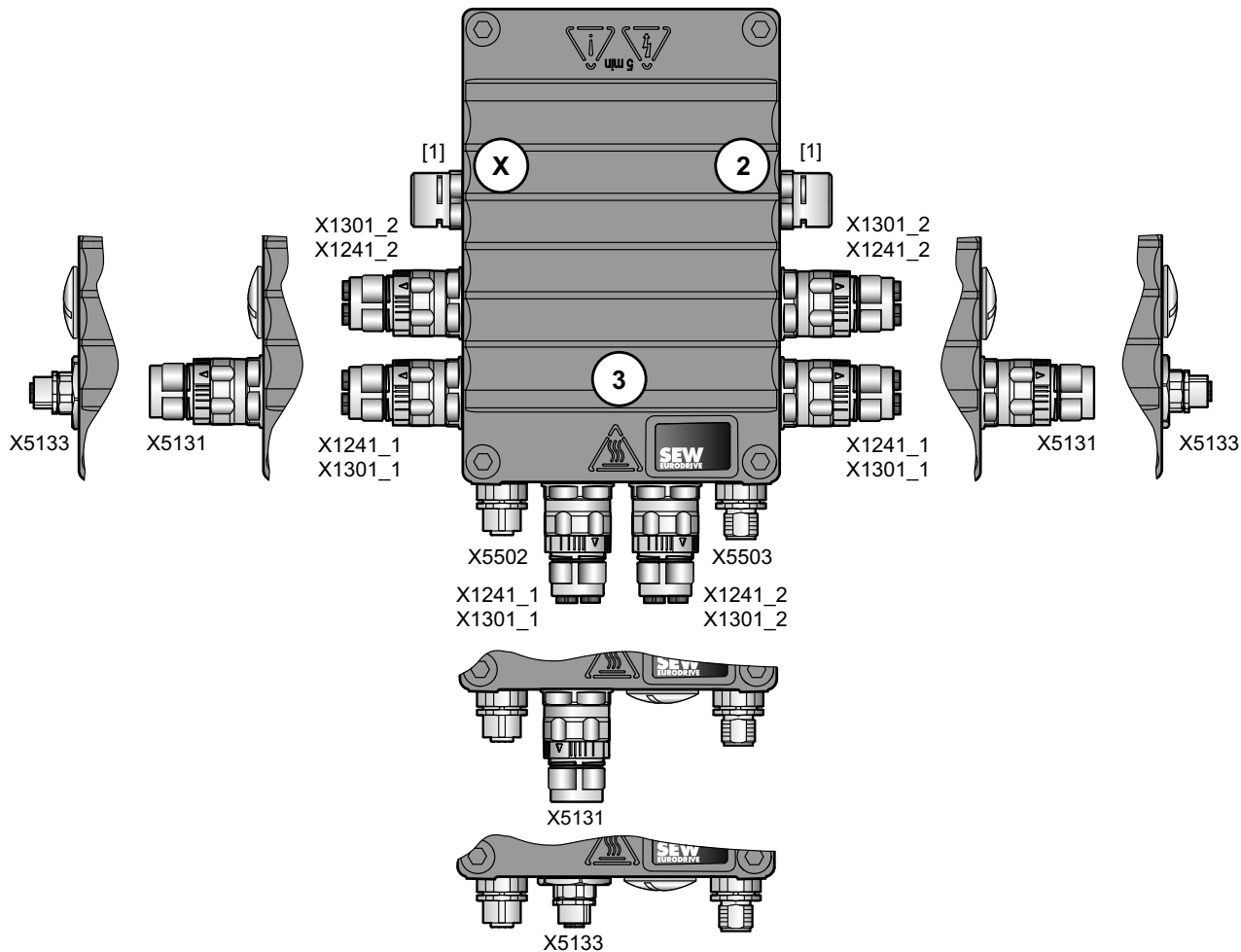
20072110475

- [1] Bending radius
- [2] "Straight" plug connector variant M23
- [3] "Right-angle" plug connector variant M23
- [4] "Straight" plug connector variant M12
- [5] "Right-angle" plug connector variant M12
- [6] "Straight" plug connector variant M12 (with adapter M23 to M12)
- [7] "Right-angle" plug connector variant M12 (with adapter M23 to M12)

6 MOVIGEAR® SNI-B/DRC-SNI electronic motor

6.1 Plug connector positions

The following figure shows possible plug connector positions:



36028799687781259

Plug connector	Position	Cannot be combined with plug connector
X5131 Digital inputs/outputs	X, 2 or 3, not together at a position with: - X1241_1/X1241_2 - X1301_1/X1301_2	X5133
X5133 (black) Digital inputs/outputs	X, 2 or 3, not together at a position with: - X1241_1/X1241_2 - X1301_1/X1301_2	X5131
X5502 (orange) STO ¹⁾	3 (left)	X1301_1/X1301_2
X5503 (orange) STO ¹⁾	3 (right)	

Plug connector	Position	Cannot be combined with plug connector
X1241_1 (red) AC 400 V connection with SNI ²⁾	X, 2 or 3, not together at a position with: X5131/X5133	X1301_1/X1301_2
X1241_2 (red) AC 400 V connection with SNI	Always corresponds to the selection of X1241_1	
X1301_1 (red/yellow) AC 400 V connection with SNI, safe disconnection (STO) ³⁾	X, 2 or 3, not together at a position with: X5131/X5133	- X1241_1/X1241_2 - X5502/X5503
X1301_2 (red/yellow) AC 400 V connection with SNI, safe disconnection (STO)	Always corresponds to the selection of X1301_1	
[1] Optional pressure compensation	Depends on mounting position	

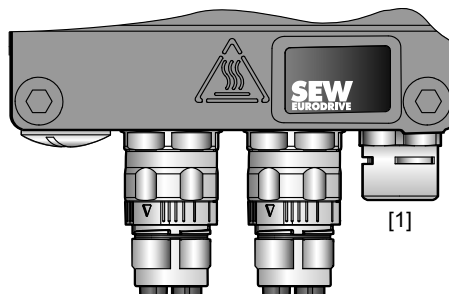
1) Plug connectors X5502 and X5503 can only be ordered together.

2) Plug connector X1241_1 can also be ordered separately (i.e. without plug connector X1241_2).

3) Plug connector X1301_1 can also be ordered separately (i.e. without plug connector X1301_2).

6.2 Restrictions in conjunction with pressure compensation

In connection with optional pressure compensation and mounting positions M5 and M6, the position for the STO plug connectors is occupied by the pressure compensation fitting [1]. In this case, plug connectors for STO are not possible:



18014400955587339

6.3 Optional plug connector assignment



▲ WARNING

Electric shock due to connecting or disconnecting plug connectors when voltage is applied.

Severe or fatal injuries

- Switch off the power supply voltage.
- Never plug or unplug plug connectors while they are energized.

6.3.1 X1241_1 and X1241_2: AC 400 V connection with SNI

The following tables show information about this connection:

Function
AC 400 V connection for supplying the unit/for looping through With Single Line Network Installation (SNI)

Connection type
M23, SEW insert, SpeedTec equipment, company: Intercontec, female, coding ring: red, protected against contact

Wiring diagram

Assignment		
No.	Name	Function
A	L1_SNI	Actuator supply phase L1 with SNI communication
B	L2_SNI	Actuator supply phase L2 with SNI communication
C	L3_SNI	Actuator supply phase L3 with SNI communication
D	Res.	Reserved
PE	PE	PE connection
1	Res.	Reserved
2	Res.	Reserved
3	Res.	Reserved
4	Res.	Reserved
5	Res.	Reserved
6	Res.	Reserved

INFORMATION



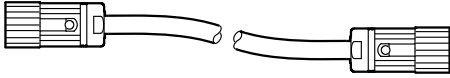
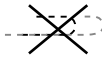
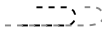
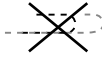
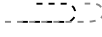
The communication method requires that you must observe the order of the line phases L1, L2, L3 between SNI controller and SNI stations 1 to 10!

Connection cable

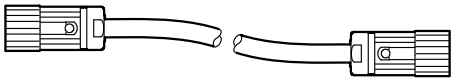
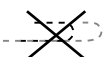
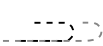
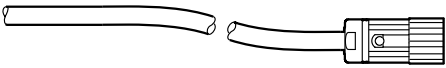
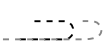
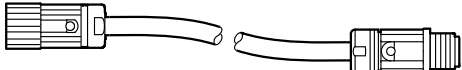
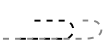
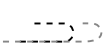
The following tables list the cables available for this connection:

6

Cable cross section 2.5 mm²

Connection cable	Conformity/ part num- ber	Cable type see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: red, male M23, coding ring: red, male	CE: 18127509	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J	Variable 	2.5 mm ² / AC 500 V
	UL: 18150381	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J-UL/CSA	Variable 	
	CE/UL: 18120679	HELUKABEL® TOPSERV® – 109	Variable 	
 Open M23, coding ring: red, male	CE: 18127517	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J	Variable 	2.5 mm ² / AC 500 V
	UL: 18150403	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J-UL/CSA	Variable 	
	CE/UL: 18120687	HELUKABEL® TOPSERV® – 109	Variable 	

Cable cross section 4 mm²

Connection cable	Conformity/ part num- ber	Cable type see also technical data	Length/in- stallation type	Cable cross sec- tion/operat- ing voltage
 M23, coding ring: red, male	CE: 18127525	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J	Variable 	4 mm ² / AC 500 V
	UL: 18150411	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J-UL/CSA	Variable 	
	CE/UL: 18120695	HELUKABEL® TOPSERV® – 109	Variable 	
 Open	CE: 18127533	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J	Variable 	4 mm ² / AC 500 V
	UL: 18153259	HELUKABEL® TOPFLEX® – EMV- UV-2YSLCYK -J-UL/CSA	Variable 	
	CE/UL: 18120709	HELUKABEL® TOPSERV® – 109	Variable 	
 M23, coding ring: red, male	CE/UL: 18166296	HELUKABEL® TOPSERV® – 109	Variable 	4 mm ² / AC 500 V
 M23, coding ring: red, fe- male	CE/UL: 18191444	HELUKABEL® TOPSERV® – 109	Variable 	4 mm ² / AC 500 V

Connection of cables with open end

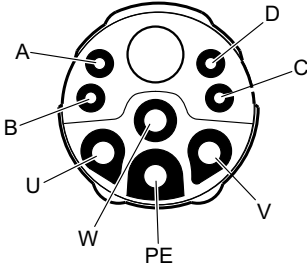
The following tables show the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18127517	L1_SNI	Brown	–
18150403	L2_SNI	Black	–
18127533	L3_SNI	Gray	–
18153259	PE	Green/yellow	–

Part number	Signal name	Color coding	Identification
18120687	L1_SNI	Black	1
18120709	L2_SNI	Black	2
	L3_SNI	Black	3
	PE	Green/yellow	–

6.3.2 X1301_1 and X1301_2: AC 400 V connection with SNI, safe disconnection (STO)

The following tables show information about this connection:

Function		
AC 400 V connection for unit supply/daisy chaining with Single Line Network Installation (SNI), safe disconnection (STO)		
Connection type		
M23, SEW insert, female, SpeedTec-capable, company: Intercontec, coding ring: Red/yellow, protected against contact		
Wiring diagram		
		
Assignment		
No.	Name	Function
U	L1_SNI	Actuator supply phase L1 with SNI communication
V	L2_SNI	Actuator supply phase L2 with SNI communication
W	L3_SNI	Actuator supply phase L3 with SNI communication
PE	PE	PE connection
A	STO+	STO+ connection
B	STO-	STO- connection
C	Res.	Reserved
D	Res.	Reserved

INFORMATION

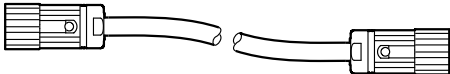
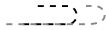
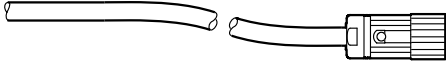
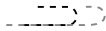
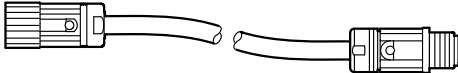
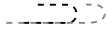
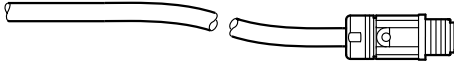
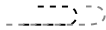


The communication method requires that you must observe the order of the line phases L1, L2, L3 between SNI controller and SNI stations 1 to 10!

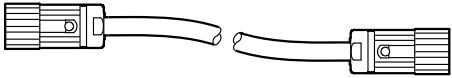
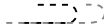
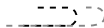
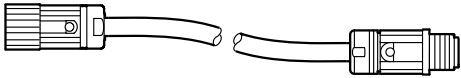
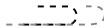
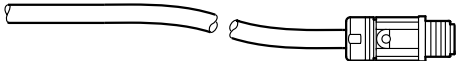
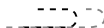
Connection cable

The following tables list the cables available for this connection:

Cable cross section 2.5 mm²

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177867	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: yellow, male	CE/UL: 18191134	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177883	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V
 Open M23, coding ring: yellow, female	CE/UL: 18191401	LEONI type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V

Cable cross section 4 mm²

Connection cable	Conformity/ part number	Cable type, see also technical data	Length/in- stallation type	Cable cross section/op- erating voltage
 M23, coding ring: yellow, male M23, coding ring: yellow, male	CE/UL: 18177875	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: yellow, male	CE/UL: 18191142	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 M23, coding ring: yellow, male M23, coding ring: yellow, female	CE/UL: 18177891	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V
 Open M23, coding ring: yellow, female	CE/UL: 18191428	LEONI type: LEHC 005296	Variable 	4 mm ² / AC 500 V

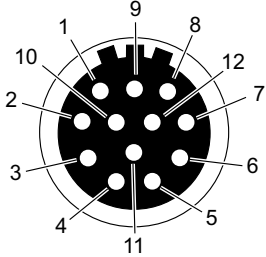
Connection of cables with open end

The following tables show the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18191134	L1_SNI	Black	U/L1
18191401	L2_SNI	Black	V/L2
18191142	L3_SNI	Black	W/L3
18191428	PE	Green/yellow	–
	STO+	Black	2
	STO-	Black	1
	Reserved	Blue	–
	Reserved	Drain wire	–
	Reserved	White	–

6.3.3 X5131: Digital inputs/outputs

The following table shows information about this connection:

Function			
Digital inputs/outputs – Motion Control MOVIGEAR® / DRC..			
Connection type			
M23, P insert, 12-pin, SpeedTec-capable, Intercontec, female, 0° coded			
Wiring diagram			
			
Assignment			
No.	Name	Function Motion control inputs DIP switch S2/3 = OFF	Function Local mode DIP switch S2/3 = ON
1	DI01	DI01 sensor input	CW/stop
2	DI02	DI02 sensor input	CCW/stop
3	DI03	DI03 sensor input	Setpoint f1/f2
4	DI04	DI04 sensor input	Changeover Automatic/local mode
5	Res.	Reserved	Reserved
6	Res.	Reserved	Reserved
7	Res.	Reserved	Reserved
8	+24V_O	Reserved	DC 24 V output
9	0V24V_O	Reserved	0V24 reference potential
10	0V24V_SEN	0V24 reference potential for sensors ¹⁾ Must be supplied via terminals X7.4	Reserved
11	+24 V_SEN	DC 24 V sensor supply ¹⁾ Must be supplied via terminals X7.3	Reserved
12	FE	Equipotential bonding / functional earth	Equipotential bonding / functional earth

¹⁾ See operating instructions, chapter "Connecting the drive unit MOVIGEAR® / DRC..".

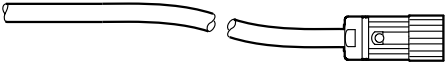
INFORMATION



Use actuator/sensor distributors with 4 slots for the sensor inputs. Use the DC 24 V output only for local mode.

Connection cable

The following table shows the cables available for this connection:

Connection cable	Conformity/part number	Length/installation type	Operating voltage
 Open M23, 12-pin, 0 °coded, male	CE/UL: 11741457	Variable -----	DC 60 V

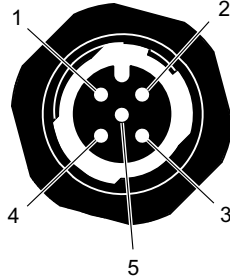
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding
11741457	DI01	Pink
	DI02	Gray
	DI03	Red
	DI04	Blue
	Reserved	Yellow
	Reserved	Green
	Reserved	Violet
	+24V_O	Black
	0V24_O	Brown
	0V24_SEN	White
	+24 V_SEN	Gray/pink
	FE	Red/blue

6.3.4 X5133: Digital inputs/outputs

The following table shows information about this connection:

Function			
Digital inputs/outputs - Motion Control MOVIGEAR® / DRC..			
Connection type			
M12, 5-pole, female, A-coded			
Wiring diagram			
			
Assignment			
No.	Name	Function Motion control inputs DIP switch S2/3 = OFF	Function Local mode DIP switch S2/3 = ON
1	+24 V_SEN	DC 24 V sensor supply ¹⁾ Must be supplied via terminals X7.3	Function is not supported
2	DI01	DI01 sensor input	
3	0V24V_SEN	0V24 reference potential for sensors ¹⁾ Must be supplied via terminals X7.4	
4	DI02	Sensor input DI02 (touchprobe input)	
5	FE	Equipotential bonding / functional earth	

¹⁾ See operating instructions, chapter "Connecting the drive unit MOVIGEAR® / DRC..".

6.3.5 X5502: STO

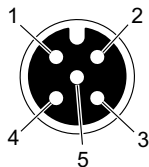


⚠ WARNING

No safe disconnection of the MOVIGEAR® / DRC.. drive unit.
Severe or fatal injuries.

- Do not use the 24 V output (pins 1 and 3) for safety-related applications with MOVIGEAR® / DRC.. drive units.
- You may only jumper the STO connection with 24 V when the MOVIGEAR® / DRC.. drive unit is not used to fulfill any safety functions.

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, female, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	+24V_O	DC 24 V output
2	STO -	STO - connection
3	0V24_O	0V24 reference potential
4	STO +	STO + connection
5	Res.	Reserved

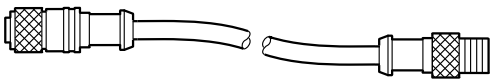
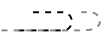
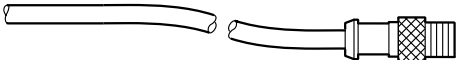
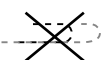
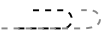
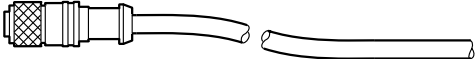
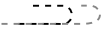
Connection cable

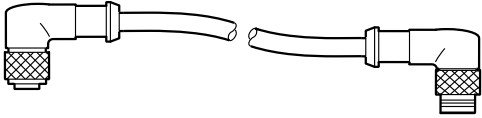
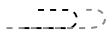
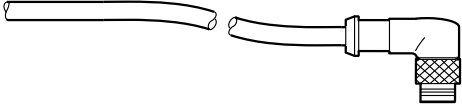
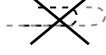
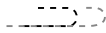
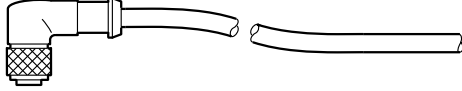
INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18124976	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147690	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE/UL: 18164390	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	2 × 0.75 mm ² / DC 60 V

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, female M12, 5-pin, A-coded, male	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 Open M12, 5-pin, A-coded, male	CE: 18127398	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18153445	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, female Open	CE: 18164315	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V

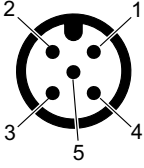
Connection of cables with open end

The following table shows the conductor assignment of cables with the following part numbers:

Part number	Signal name	Color coding	Identification
18124976	STO –	Black	1
18147690	STO +	Black	2
18164390			
18127398			
18153445			
18164315			

6.3.6 X5503: STO

The following table shows information about this connection:

Function		
Connection for safe disconnection (STO)		
Connection type		
M12, 5-pin, male, A-coded		
Wiring diagram		
		
Assignment		
No.	Name	Function
1	Res.	Reserved
2	STO -	STO - connection
3	Res.	Reserved
4	STO +	STO + connection
5	Res.	Reserved

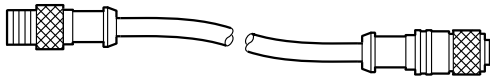
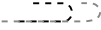
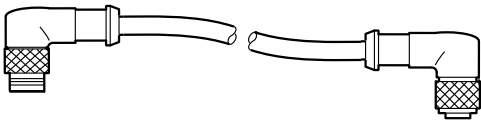
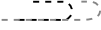
Connection cable

INFORMATION



Use only shielded cables for this connection and only appropriate plug connectors that connect the shield with the unit in an HF-compatible manner.

The following table shows the cables available for this connection:

Connection cable	Conformity/ part number	Cable type	Length/in- stallation type	Cable cross section/ operating voltage
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18124968	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147402	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	
 M12, 5-pin, A-coded, male M12, 5-pin, A-coded, female	CE: 18127401	LEONI BETAflam® – 145C-flex	Variable 	2 × 0.75 mm ² / DC 60 V
	CE/UL: 18147704	HELU- KABEL® SUPER- PAAR- TRONIC 340-C-PUR	Variable 	

6.3.7 STO jumper plug



▲ WARNING

Safe disconnection of the MOVIGEAR® / DRC.. drive unit is not possible when the STO jumper plug is used.

Severe or fatal injuries.

- You may only use the STO jumper plug when the MOVIGEAR® / DRC.. drive unit does not fulfill any safety function.



▲ WARNING

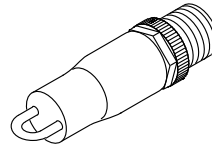
Disabling of safety-related disconnection of other drive units due to parasitic voltages when using an STO jumper.

Severe or fatal injuries.

- You may only use the STO jumper when all incoming and outgoing STO connections have been removed from the drive unit.

The STO jumper plug can be connected to the STO plug connector X5502 of MOVIGEAR® / DRC... The STO jumper plug deactivates the safety functions of the MOVIGEAR® / DRC.. drive unit.

The following figure shows the STO jumper plug, part number 11747099:



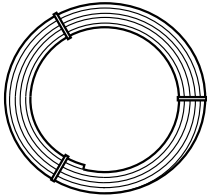
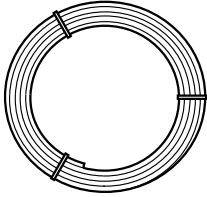
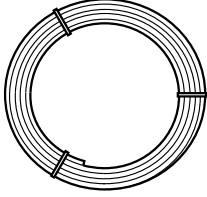
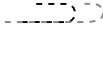
63050395932099851

6.4 Connection cable

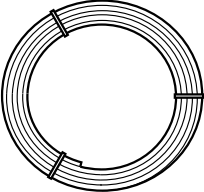
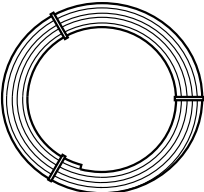
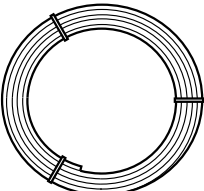
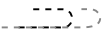
6.4.1 Required connection cables for single line installation (SNI)

The following tables show the available SNI supply system cables:

Cable cross section 2.5 mm²

SNI supply system cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/in- stallation type	Cable cross section/oper- ating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE: 13303309	HELUKABEL TOPFLEX® – EMV- UV-2YSLCYK-J	Fixed 	2.5 mm ² / AC 500 V
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	UL: 19092156	HELUKABEL TOPFLEX® – EMV- UV-2YSLCYK-J- UL/CSA	Fixed 	
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19095090	HELUKABEL TOPSERV® – 109	Fixed 	

Cable cross section 4 mm²

SNI supply system cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/in- stallation type	Cable cross section/oper- ating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE: 13305506	HELUKABEL TOPFLEX® – EMV- UV-2YSLCYK-J	Fixed 	4 mm ² / AC 500 V
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	UL: 19092164	HELUKABEL TOPFLEX® – EMV- UV-2YSLCYK-J- UL/CSA	Fixed 	
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19095104	HELUKABEL TOPSERV® – 109	Fixed 	

INFORMATION

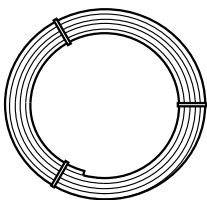
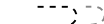


You find more permitted SNI cables in the technical data/chapter "Prescribed connection cables for single line installation".

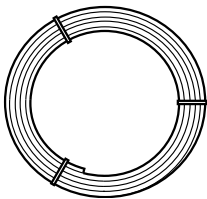
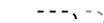
6.4.2 Hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)

The following tables show the hybrid cables available for AC 400 V, communication, and safe disconnection (STO):

Cable cross section 2.5 mm²

Hybrid cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19162812	LEONI Type: LEHC 005295	Variable 	2.5 mm ² / AC 500 V

Cable cross section 4 mm²

Hybrid cable				
Lengths that can be preassembled	Conformity/ part number	Cable type see also technical data	Length/ Installation type	Cable cross section/operating voltage
Cable reel 100 m Cable reel 200 m  Open cable end (not prefabricated)	CE/UL: 19162820	LEONI Type: LEHC 005296	Variable 	4 mm ² / AC 500 V

6.5 Required connection cables for single line installation (SNI)

SEW-EURODRIVE specifies the following cable types for connecting SNI drive units MOVIGEAR® / DRC.. and SNI controller:

A high signal quality is achieved due to the low operating capacitance of the specified cables. The shielding prevents interference emission resulting from the data transmission modulated onto the line.

INFORMATION



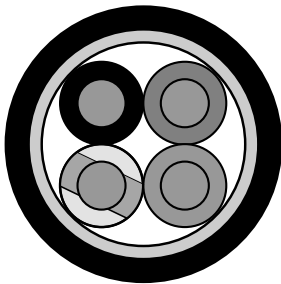
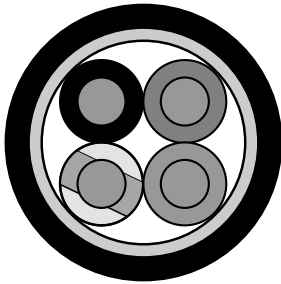
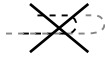
Compare the outer diameter of the specified connection cables for single line installation with the technical data of the EMC cable glands supplied with certain products.

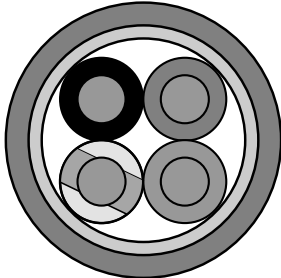
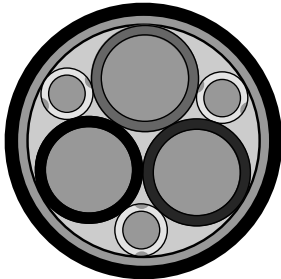
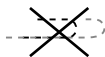
INFORMATION



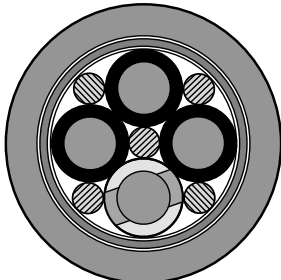
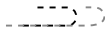
SEW-EURODRIVE recommends using approved, cable-carrier suited connection cables for single line installation **only** in areas where these features are actually needed.

6.5.1 HELUKABEL TOPFLEX®

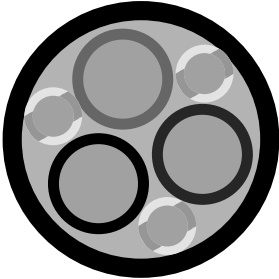
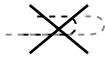
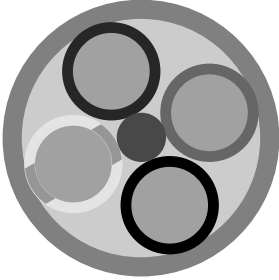
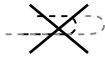
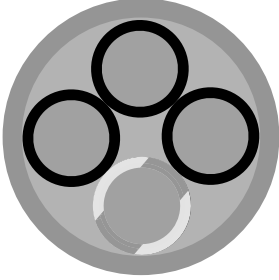
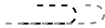
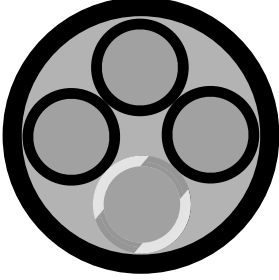
Cable type	Outer cable sheath	Conformity	Properties
HELUKABEL TOPFLEX® – EMV-UV-2YSLCYK-J 	Color: - Black Diameter: 12.3 mm (2.5 mm²) 14.5 mm (4.0 mm²)	CE	- UV resistant - Not suitable for cable carriers 
HELUKABEL TOPFLEX® – EMV-UV-2YSLCYK-J/UL/CSA 	Color: - Black Diameter: 12.5 mm (2.5 mm²) 14.2 mm (4.0 mm²)	CE/UL	- UV resistant - Not suitable for cable carriers 

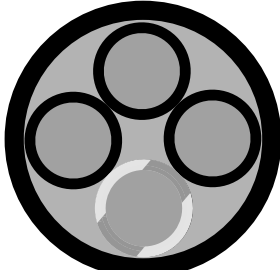
Cable type	Outer cable sheath	Conformity	Properties
HELUKABEL TOPFLEX® – EMV-2YSLCY-J 	Color: - Transparent Diameter: 11.9 mm (2.5 mm²) 13.6 mm (4.0 mm²)	CE	Not suitable for cable carriers 
HELUKABEL TOPFLEX® – EMV-UV-3 PLUS 2YSLCYK-J 	Color: - Black Diameter: 10.8 mm (2.5 mm²) 12.3 mm (4.0 mm²)	CE	- UV resistant - Not suitable for cable carriers 

6.5.2 HELUKABEL TOPSERV®

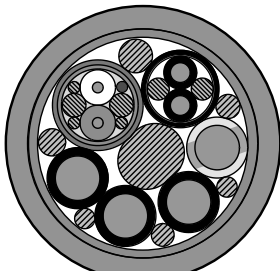
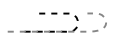
Cable type	Outer cable sheath	Conformity	Properties
HELUKABEL TOPSERV® – 109 PUR 	Color: - Orange Diameter: 10.6 mm (2.5 mm²) 11.9 mm (4.0 mm²)	CE/UL	- Halogen-free - UV resistant - Suitable for cable carriers 

6.5.3 LAPP ÖLFLEX®

Cable type	Outer cable sheath	Conformity	Properties
LAPP ÖLFLEX® SERVO 2YSLCYK-JB 	Color: - Black Diameter: 12.2 mm (2.5 mm²) 14.4 mm (4.0 mm²)	CE	- UV resistant - Not suitable for cable carriers 
LAPP ÖLFLEX® SERVO 2YSLCY-JB 	Color: - Transparent Diameter: 12.4 mm (2.5 mm²) 15.6 mm (4.0 mm²)	CE	Not suitable for cable carriers 
LAPP ÖLFLEX® SERVO FD796 CP 	Color: - Orange Diameter: 10.6 mm (2.5 mm²) 11.9 mm (4.0 mm²)	CE/UL	- Halogen-free - UV resistant - Suitable for cable carriers 
LAPP ÖLFLEX® VFD XL 	Color: - Black Diameter: 14.8 mm (2.5 mm²) 16.5 mm (4.0 mm²)	CE/UL	- UV resistant - TC-ER approval - Not suitable for cable carriers 

Cable type	Outer cable sheath	Conformity	Properties
LAPP ÖLFLEX® VFD 2XL 	Color: - Black Diameter: 14.8 mm (2.5 mm²) 16.7 mm (4.0 mm²)	CE/UL	- UV resistant - TC-ER approval - Not suitable for cable carriers 

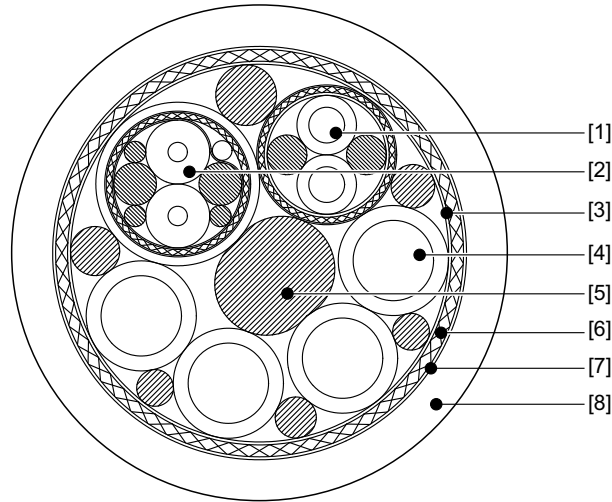
6.5.4 Leoni LEHC

Cable type	Outer cable sheath	Conformity	Properties ¹⁾
Leoni LEHC 005295 Rev.2 LEHC 005296 Rev.2 	Color: - Orange Diameter: - LEHC 005295 Rev.2: 15.6 mm (2.5 mm²) - LEHC 005296 Rev.2: 16.7 mm (4.0 mm²)	CE/UL	- Halogen-free - UV resistant - Suitable for cable carriers 

1) See also chapter "Specification of hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)"

6.6 Specification of hybrid cables AC 400 V, communication (DSC or SNI) and safe disconnection (STO)

The following figure shows the structure of the hybrid cable:



9007219046263179

	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
[1]	1 core pair Conductor Insulation Colors Shield Optical cover- age Sheath	0.75 mm ² Stranded copper wire, 42 x 0.15 mm Polypropylene Black cores with white digits 1, 2 Braided copper wire, 0.1 mm, tinned min. 85% Banding
[2]	1 core pair Conductor Insulation Colors Shield Drain wire Conductor Shield Optical cover- age Sheath Color	2 x 0.24 mm ² Stranded copper wire, blank, 19 x 0.127 mm Polypropylene White and blue Banding 0.34 mm ² Stranded copper wire, blank, 19 x 0.15 mm Braided copper wire, 0.10 mm, tinned min. 85% TPE Violet
[3]	Banding	

	Type: Leoni LEHC 005295 Rev.2		Type: Leoni LEHC 005296 Rev.2	
[4]	4 cores Conductor Insulation Colors	2.5 mm ² Stranded copper wire, blank, 147 x 0.15 mm Polypropylene Green/yellow, black with lettering U/L1; V/ L2; W/L3	4 cores Conductor Insulation Colors	4.0 mm ² Stranded copper wire, blank, 224 x 0.15 mm Polypropylene Green/yellow, black with lettering U/L1; V/ L2; W/L3
[5]	Filler			
[6]	Shield Optical cover- age	Braided tinned copper wires, 0.15 mm min. 87%	Shield Optical cover- age	Braided tinned copper wires, 0.20 mm min. 87%
[7]	Banding	EMC fleece		
[8]	Outer cable sheath Color	Polyurethane Orange (similar to RAL2003)		

6.6.1 Technical data of hybrid cables

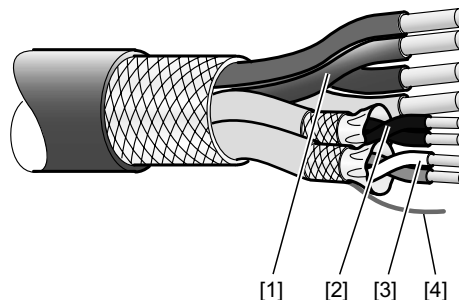
The following table shows the technical data of the hybrid cable:

Properties	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
UL features	UL style 20234, 80 °C, 1000 V E47543-LIL  certified	
Test voltage core/core	4.0 kV 50 Hz AC	
Test voltage core/shield	3.0 kV 50 Hz AC	
Operating voltage	1000 V	
Position [4]		
Wave impedance	125 Ω ±10%	
Position [2]		
Attenuation	Nom. 2.5 dB/100 m at 1 MHz	
Position [2]	Nom. 6.5 dB/100 m at 10 MHz	
Runtime	Nom. 5 ns/m	
Position [2]		
Operating temperature	-30 °C to +80 °C (fixed installation) -25 °C to +80 °C (cable carrier)	
Weight of cable	Nom. 342 g/m	Nom. 428 g/m
Bending radii	Min. 5 x outer diameter (fixed installation) Min. 10 x outer diameter (cable carrier)	

Properties	Type: Leoni LEHC 005295 Rev.2	Type: Leoni LEHC 005296 Rev.2
Cable diameter	15.6 mm ± 0.5 mm	16.7 mm ± 0.5 mm
Chemical properties	• Oil resistance according to DIN VDE 0282-10/ HD 22.10 S2 • General fuel resistance (e.g. diesel, gasoline) • Flame retardant according to UL 1581 section 1060 Vertical Flame Test (FT1) • Flame retardant according to CSA C22.2 No.3-92 Vertical Flame Test (FT1) • Flame retardant according to IEC 60332-1-2 • Halogen-free according to IEC 60754-1 • General resistance to acids, alkalis, and cleaning agents • General hydrolytic resistance • General resistance against UV radiation • Free from paint-wetting impairment substances	

6.6.2 Notes on connection

The following figure shows the cable design and use of connections:



19800410891

- [1] Connection for supply system/PE
- [2] STO connection
- [3] CAN_H/CAN_L connection
- [4] CAN_GND connection via drain wire

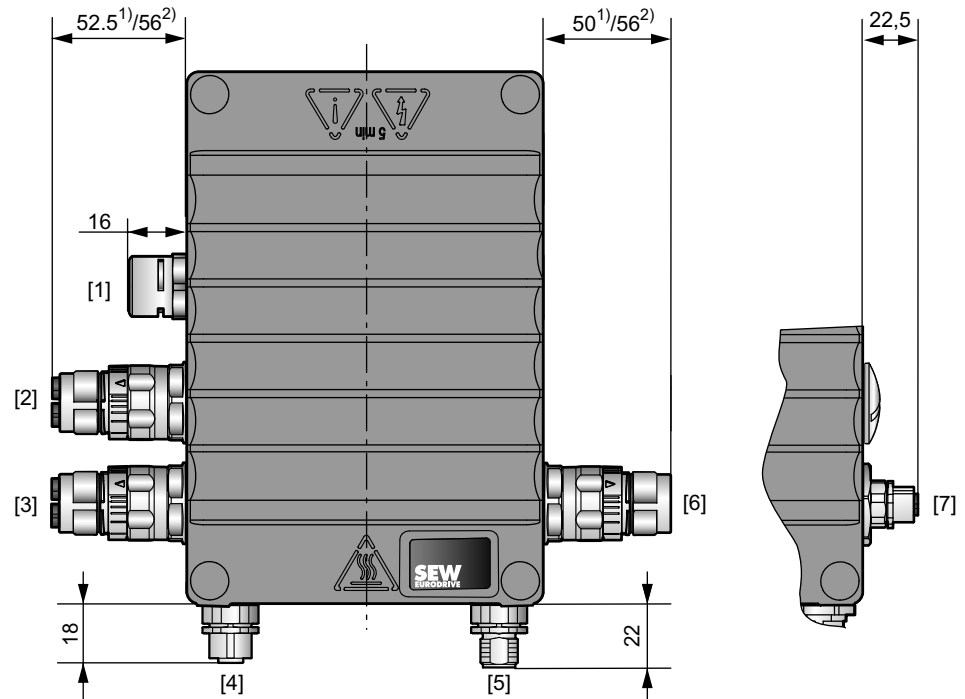
6.7 Dimension drawings for MOVIGEAR® SNI-B/DRC-SNI electronic motors

6.7.1 Plug connector



INFORMATION

- The following figure shows an example of the additional dimensions of the optional plug connectors for a possible plug connector configuration.
- For more information, refer to the chapter "Plug connector positions".



19949030027

- 1) "Straight" plug connector variant
- 2) "Right-angle" plug connector variant
- [1] Pressure compensation fitting in connection with the optional package for wet areas (MOVIGEAR®)/ASEPTIC variant (DRC..).
- [2] X1241_2: AC 400 V connection with SNI
- [3] X1241_1: AC 400 V connection with SNI
- [4] X5502: STO – IN
- [5] X5503: STO – OUT
- [6] X5131: Digital inputs/outputs
- [7] X5133: Digital inputs/outputs

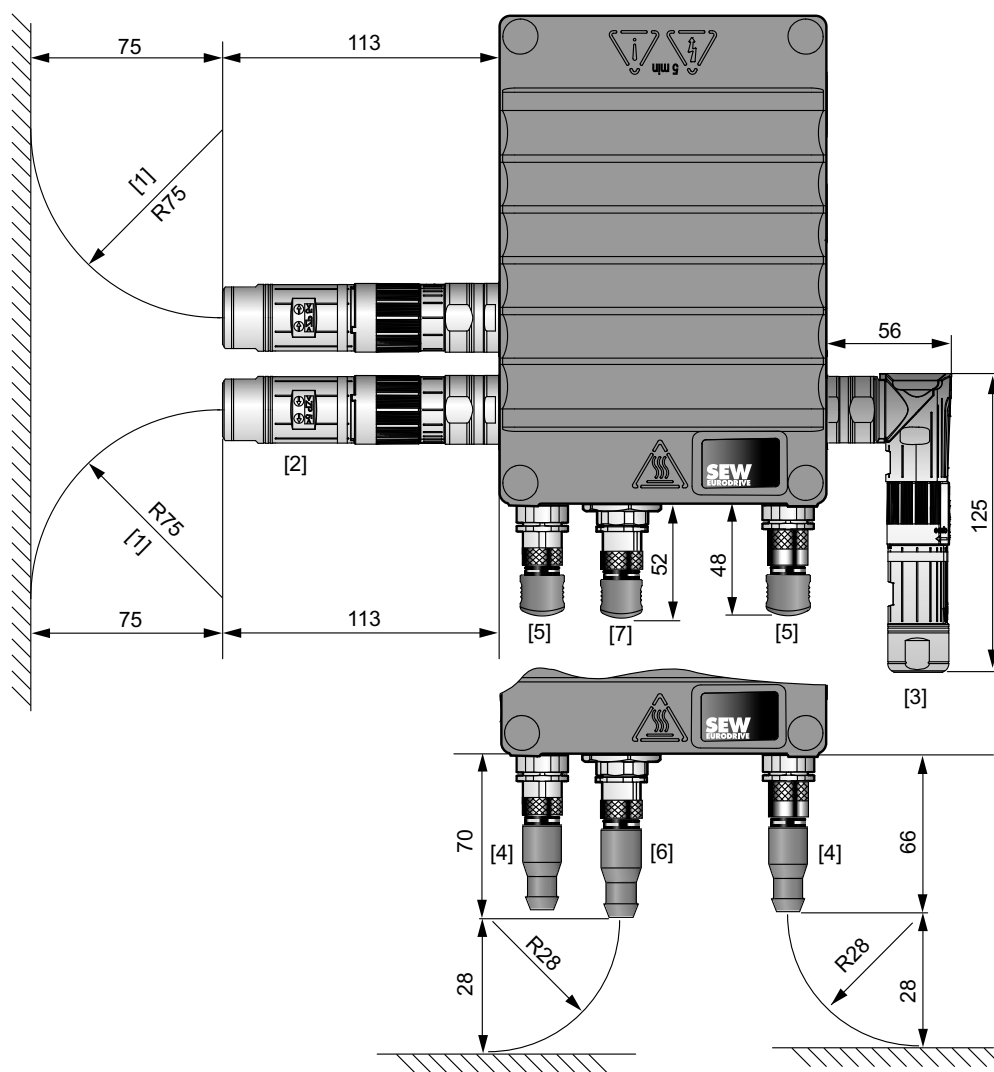
6.7.2 Plug connector including mating connector

INFORMATION



- The following figure shows the additional dimensions/bending radii of the optional plug connectors including mating connector in connection with prefabricated cables from SEW-EURODRIVE.
- For more information, refer to the chapter "Plug connector positions".

6



19949032459

- [1] Bending radius
- [2] "Straight" plug connector variant M23
- [3] "Right-angle" plug connector variant M23
- [4] "Straight" plug connector variant M12
- [5] "Right-angle" plug connector variant M12
- [6] "Straight" plug connector variant M12 (with adapter M23 to M12)
- [7] "Right-angle" plug connector variant M12 (with adapter M23 to M12)

Index

B

Bus terminating resistor 73, 77

C

Cables

Prescribed 123

Recommended 90, 92

CAN bus

Connection cable 90

Terminating resistor 73, 77

Connection

Plug connector assignment 34

Connection cable

Hybrid cable 89, 122

Prescribed 120, 123

Recommended 88, 90, 92

Connection cables

Information 8

Copyright notice 7

D

Dimension drawings

Plug connector 30, 50, 98, 129

Plug connector with mating connector
..... 31, 51, 99, 131

E

Embedded safety notes 6

Exclusion of liability 7

H

Hybrid cable 88, 92, 95, 127

I

Installation (electrical)

Plug connector assignment 34

N

Notes

Designation in the documentation 6

P

Plug connector

Assignment 34

Connection cables 8

Designation key 8

Dimension drawing

..... 30, 31, 50, 51, 98, 99, 129, 131

Plug connector positions 14, 32, 52, 100

Plug connector variant 10

Restrictions 15, 33, 54, 101

Product names 7

R

Rights to claim under limited warranty 7

S

Safety notes

Designation in the documentation 6

Structure of embedded 6

Structure of the section-related 6

Section-related safety notes 6

Signal words in safety notes 6

SNI

Prescribed connection cables 123

STO jumper plug 29, 49, 87, 119

T

Trademarks 7

Type designation

Plug connector 8

X

X1203_1

Assignment 16, 36, 55

Connection cables, available 17, 37, 56

X1203_2

Assignment 16, 36, 55

Connection cables, available 17, 37, 56

X1231

Assignment 60

Connection cables, available 61

X1241_1

Assignment 102

Connection cables, available 103

X1241_2

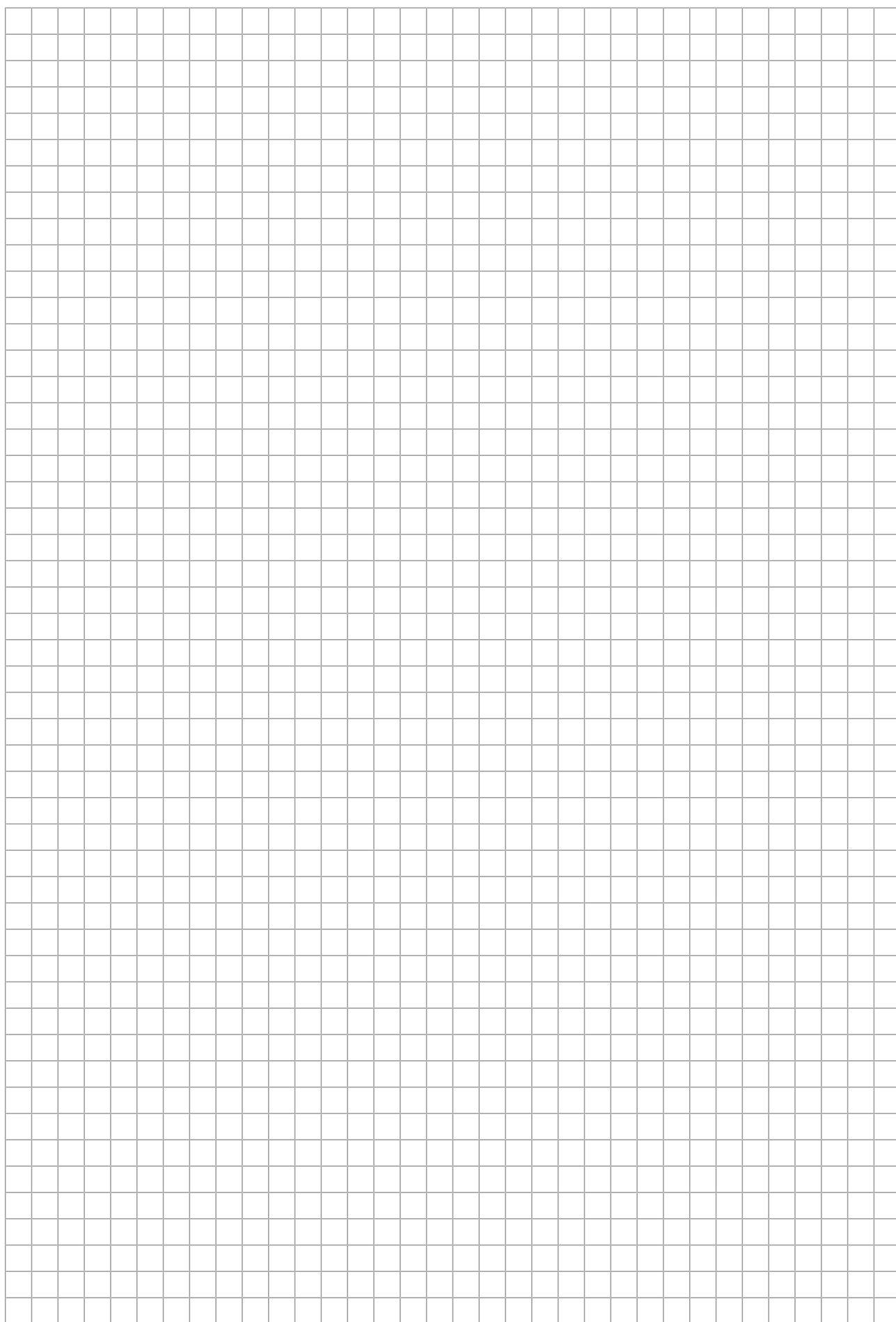
Assignment 102

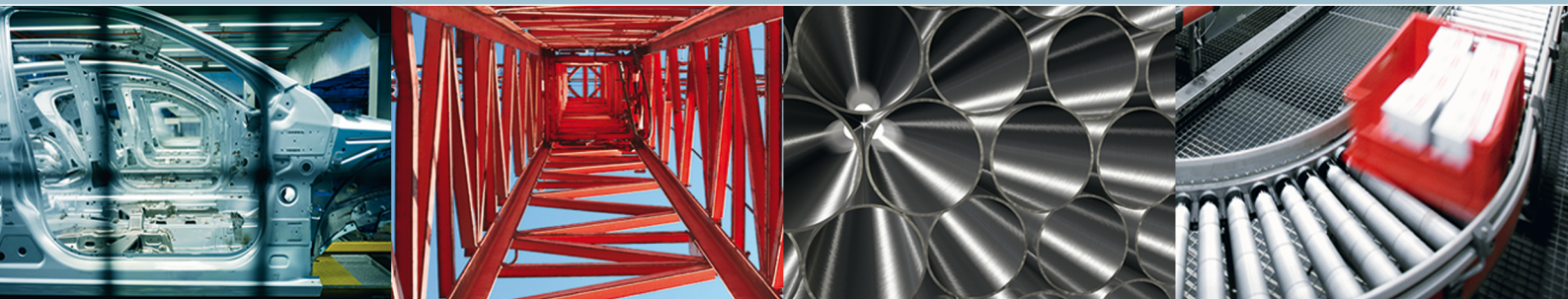
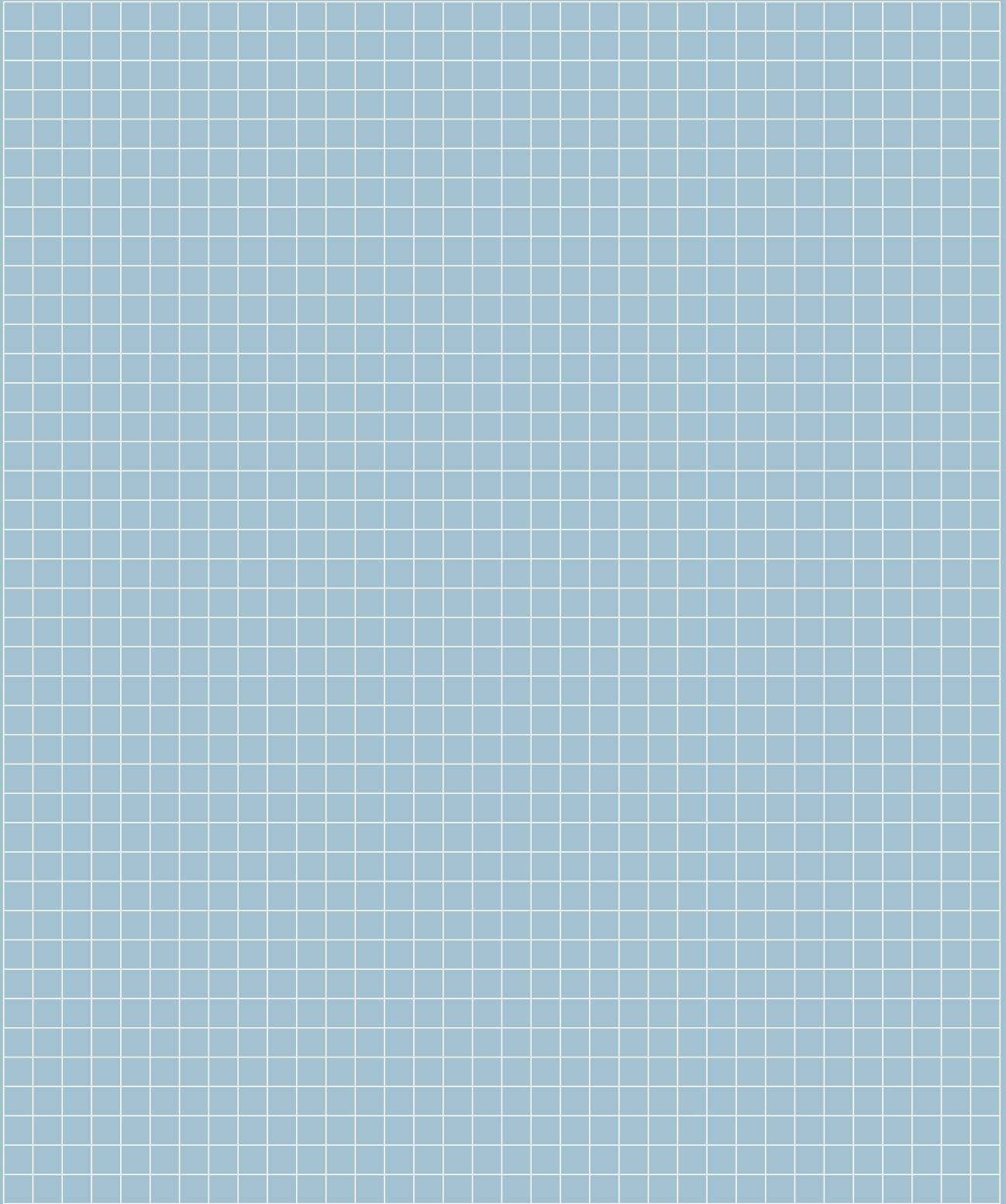
Connection cables, available 103

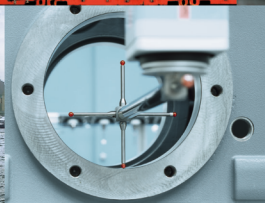
X1291

Assignment 67

X1301_1		X4271	
Assignment.....	106	Assignment.....	34
Connection cables, available.....	107	X5011	
X1301_2		Assignment.....	35
Assignment.....	106	X5131	
Connection cables, available.....	107	Assignment.....	78, 110
X2324		Connection cables, available.....	79, 111
Assignment.....	64	X5132	
Connection cables, available.....	65	Assignment.....	21, 41
X2391		Connection cables, available.....	22, 42
Assignment.....	71	X5133	
X4103		Assignment.....	80, 112
Assignment.....	76	X5502	
Connection cables, available.....	77	Assignment.....	23, 43, 81, 113
X4104		Connection cables, available.....	24, 44, 82, 114
Assignment.....	74	X5503	
Connection cables, available.....	75	Assignment.....	27, 47, 85, 117
		Connection cables, available.....	28, 48, 86, 118







SEW-EURODRIVE
Driving the world

SEW
EURODRIVE

SEW-EURODRIVE GmbH & Co KG
P.O. Box 3023
76642 BRUCHSAL
GERMANY
Phone +49 7251 75-0
Fax +49 7251 75-1970
sew@sew-eurodrive.com
→ www.sew-eurodrive.com